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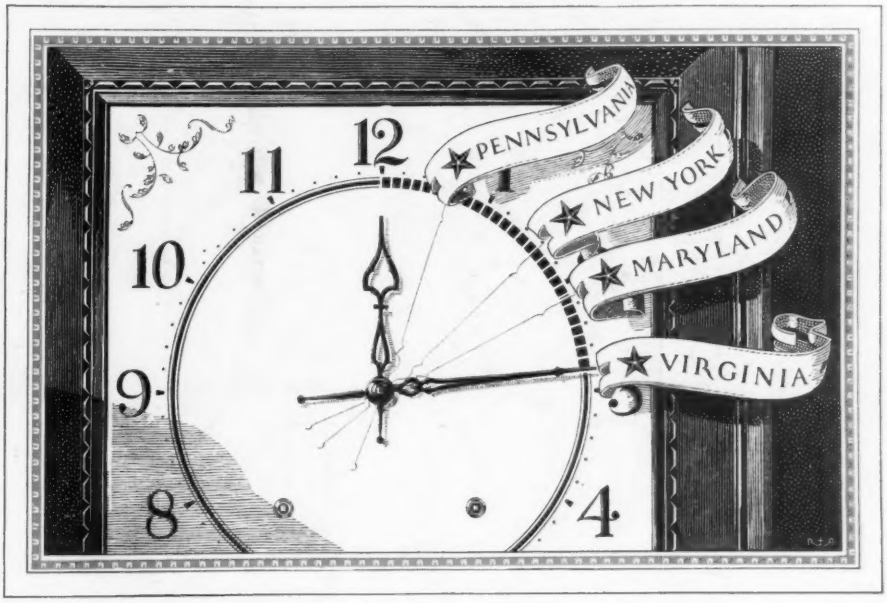

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Kaumagraph has opened a new office at 417 Provident Bldg., Chattanooga. Tenn. in charge of Mr. Charles L. Hall, Jr. This new office will serve the territories indicated on the map at the left.

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KNOW, the expansion of industry in the South results in the expansion of the Kaumagraph Company's business, the better to serve this growing district. And so we announce the opening of our new office at 417 Provident Bldg., Chattanooga, Tenn. in charge of Mr. Charles L. Hall, Jr.

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COTTON

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When changing address notify us, not the postmaster. Always give the old address as well as the new one.

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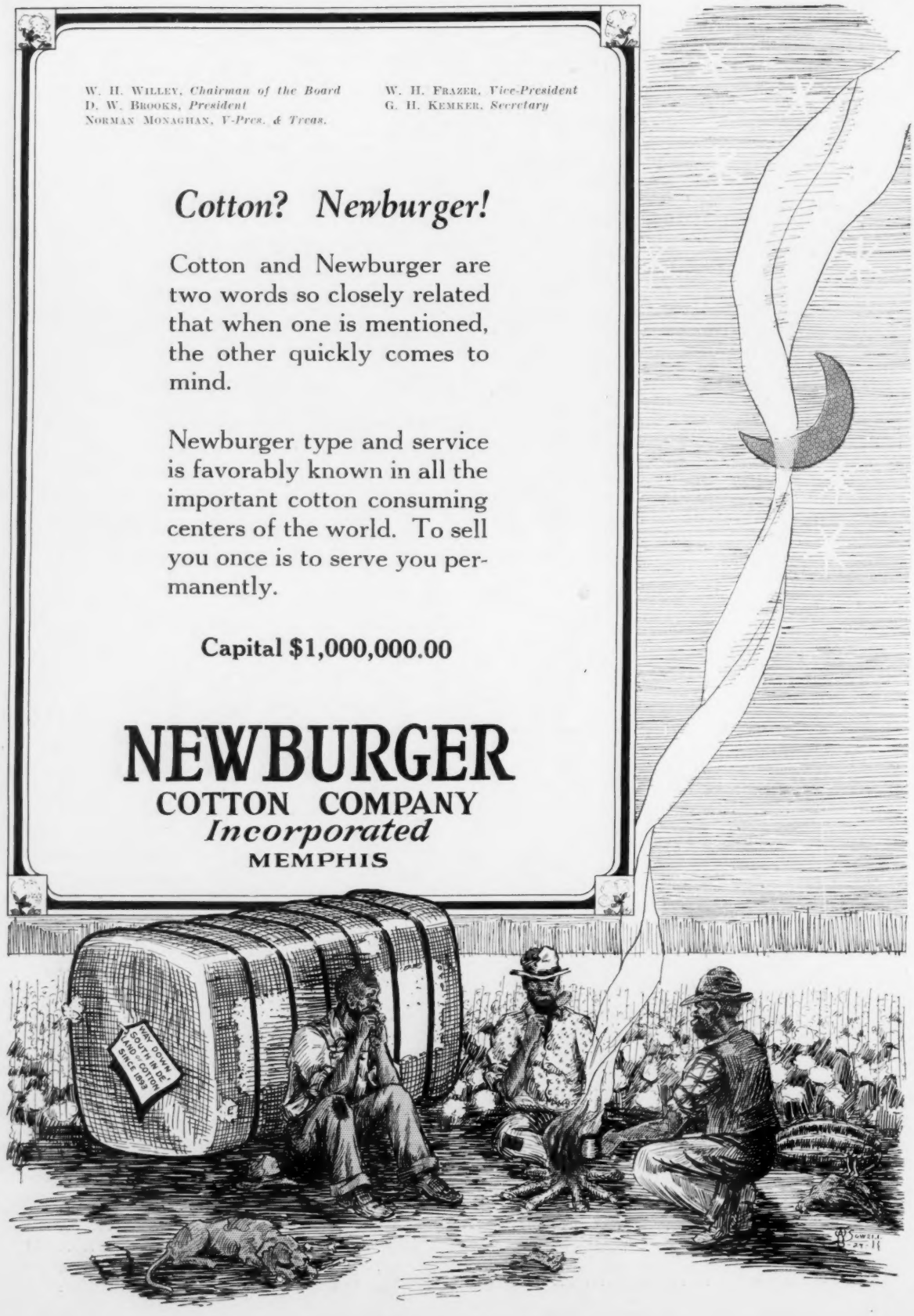
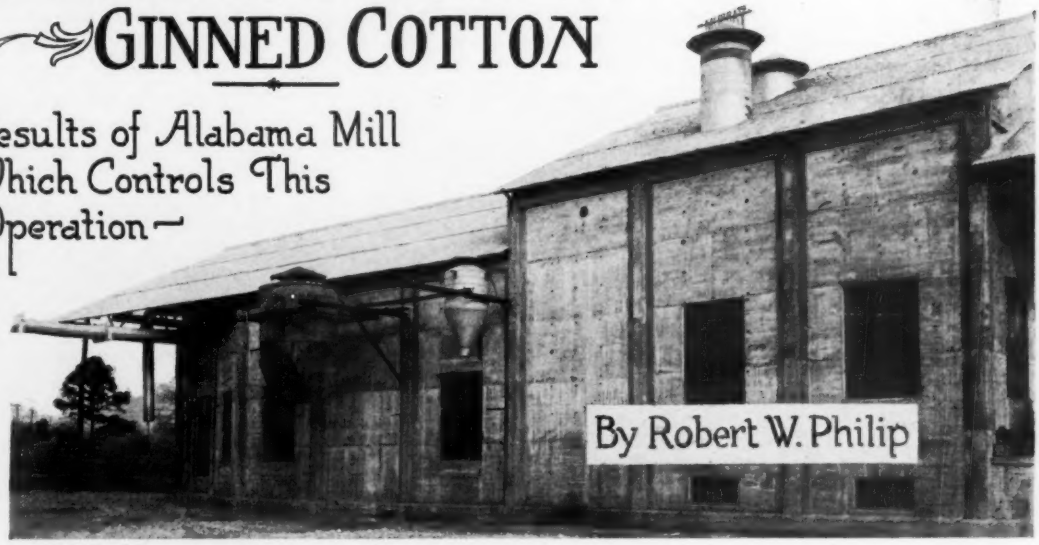


EFFECTS OF PROPERLY GINNED COTTON

Results of Alabama Mill Which Controls This Operation—



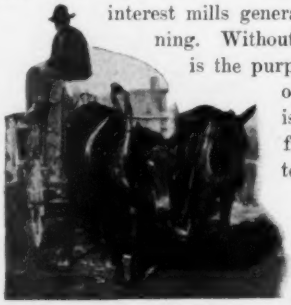
By Robert W. Philip

The concrete building housing the modern ginning plant of the Profile Cotton Mills, Jacksonville, Ala.

An authority recently stated that the grade of cotton is determined by weather damage before harvesting, by harvesting methods, *and by ginning.* Staple length, fiber strength, uniformity and character, are fundamentally matters of breeding and selection, but they are influenced by soils and climatic conditions, *and by skill or lack of skill on the part of the ginner.*

It is that portion of this man's statement which we have put in italics, that part referring to the influence of ginning upon grade, that forms the text of this brief article. Every cotton manufacturer knows these facts, and some few have taken measures in individual cases, to improve various features of the handling given their raw material before it reaches the mill. Much money has been spent by mills in equipping their plants with modern and efficient opening machinery. Much study has been devoted to improving the varieties of cotton, and to inducing the farmer to grow staples more suitable for the mills. The Department of Agriculture, state colleges and other interested agencies are striving to teach the farmer how to gather and store his cotton properly so as to realize its greatest value. There is, however, one vital link in the chain that seems to have been sadly neglected, and that is the ginning of cotton.

In view of the importance of the operation and its effect upon the cotton, it is really surprising how scant an interest mills generally have displayed in ginning. Without going into great detail, it is the purpose of this article to point out that the ginning process is a very deciding factor in fixing the value of cotton to the mills. Too long, it would seem, has the cotton gin been looked upon as a necessary evil; a device for removing the fibers from the seed—nothing more.



At the present time there are approximately seventeen thousand gin plants throughout the South. For the most part, these are owned individually, and gin cotton for the public at large. With the exception of Oklahoma, there has been little or no attempt to see that these plants are adequately equipped and properly operated. A substantial economic loss to the grower and later to the mill is directly traceable to mediocre ginning.

In the majority of cases, of course, it is out of the question for cotton mills to operate gin plants in connection with their business. At the same time, it would appear highly important that mills bring considerable pressure to bear on the gin owners to the end that their raw material—cotton—is properly ginned; in other words, mills should indeed find it highly profitable to consider ginning as the first mechanical step in the production of yarn. Price differentials will not entirely serve the purpose; constructive criticism and a definite plan for a period of time is needed, and will ultimately benefit all concerned. There is a difference in ginning; and by ginning is meant the entire sequence of opening, cleaning and moting incidental to separating the cotton from the seed. To demonstrate this, the two enlarged photographs of cotton samples are used on the following page. These two samples were taken from the same field, in fact the same wagon, and were grown by one man. One sample shows the possibilities of good ginning; the other speaks for itself.

As an example of the advantages derived from proper ginning, and the possibilities that may be developed by an active interest on the part of the mill, this article will describe, briefly, the experience of the Profile Cotton Mills, at Jacksonville,

Ala., in operating a gin in connection with their yarn mill. W. I. Greenleaf, president of the mill, has given the subject deep investigation and study, and the following thoughts are set down after a day spent with him in discussing this phase of his activity. For a number of years, Mr. Greenleaf has conducted a ginning plant at Jacksonville. His mills, making 20s to 50s sale yarns for specialty markets, has always secured a large portion of its raw material from the surrounding territory, and local conditions have made it advisable and satisfactory, from the mill's standpoint, to carry on this additional operation.

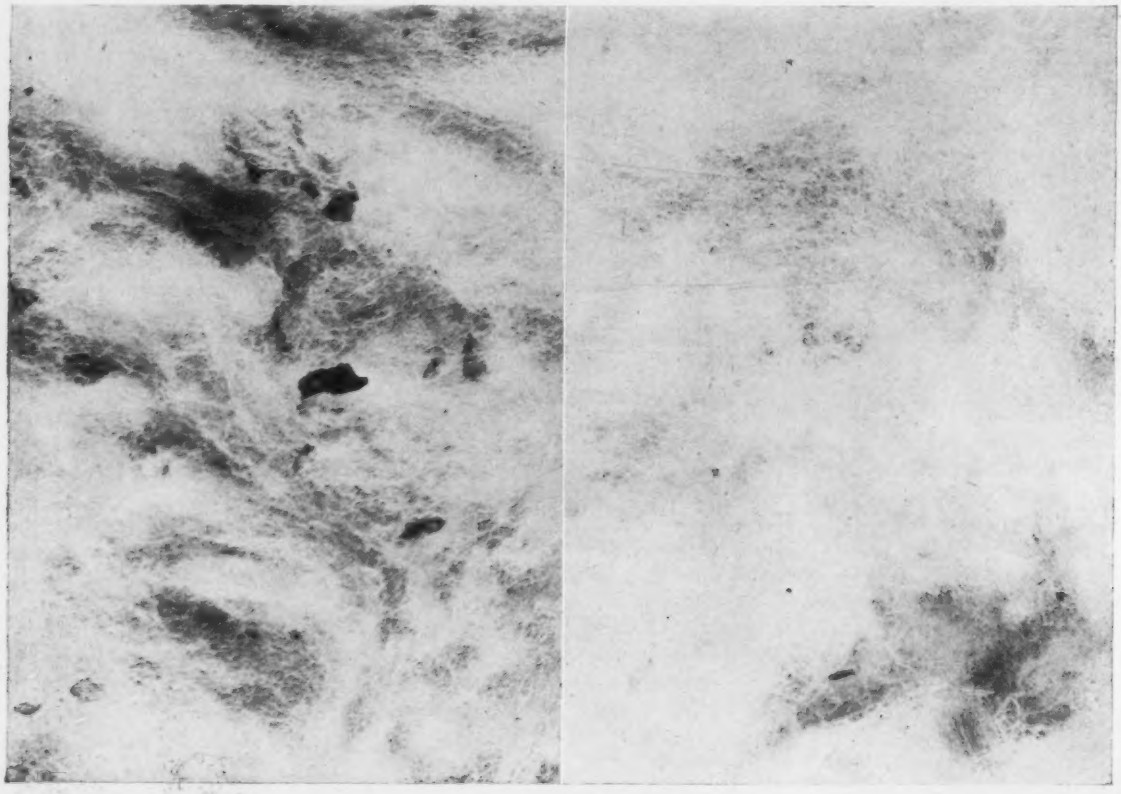
It was not until recently, however, that Mr. Greenleaf discovered the ultimate possibilities in the effect of proper ginning on the efficiency of the mill processes, and the results of his research and practice should be of interest to the whole industry. He erected, and placed in operation last year, a gin which experts have called the most modern and efficient plant of its kind in this country.

The building is of concrete, with steel sash and doors, and corrugated asbestos roof. The machinery consists of twelve stands of Murray all steel air blast gins with the necessary auxiliary equipment in the way of cleaners, distributors, feeders, lint flues, condensers, baling presses, etc. The entire structure and machinery are just as nearly fire-proof as it is possible to construct a gin plant.

Air line cleaners are located in the suction line drawing the cotton from the wagons, and four drum "quad" cleaners are provided in the distribution system to clean the seed cotton. Each gin stand and each cleaner is driven by an individual motor, using Tex-Rope drive, this arrangement giving flexibility and simplicity in operation. The cleaning system is connected with exhaust fans that dispose of the dust and refuse in metal cyclone collectors outside the building. The whole plant is nicely located on well-kept grounds, and altogether makes a very good appearance. It is indeed quite a contrast to the usual local gin from which the average mill indirectly receives its cotton.

In the process of ginning, the seed cotton first passes through the air line cleaners in the suction system, where it receives the primary cleaning, and, incidentally, Mr. Greenleaf pointed out, in very dirty cotton they have removed as much as 250 pounds of sand and foreign matter from one bale of cotton with these machines. The cotton then goes to the four-cylinder "quad" cleaners, where the opening up of the seed cotton is completed and as much additional leaf, trash and shale as possible is removed. It was interesting to learn that best results in ginning are obtained only when the cotton is opened up and the fibers straightened out—just as in the mill operations of cleaning and picking.

Using high-speed saws running about 880 r.p.m., and maintaining the roll of cotton in a very loose condition, Mr. Green'eaf stated, gives the best results. He pointed out that it would be useless to open the seed cotton and then compress the fibers again in a tight roll. Each saw tooth operating at this speed takes only a few fibers at a time—theoretically seven to nine fibers per tooth—from the loosely formed roll, thereby preventing neps, gin cuts or bruised fibers, and leaving the cotton with a bloom. Mr. Greenleaf further pointed out that in his opinion a tight roll re-



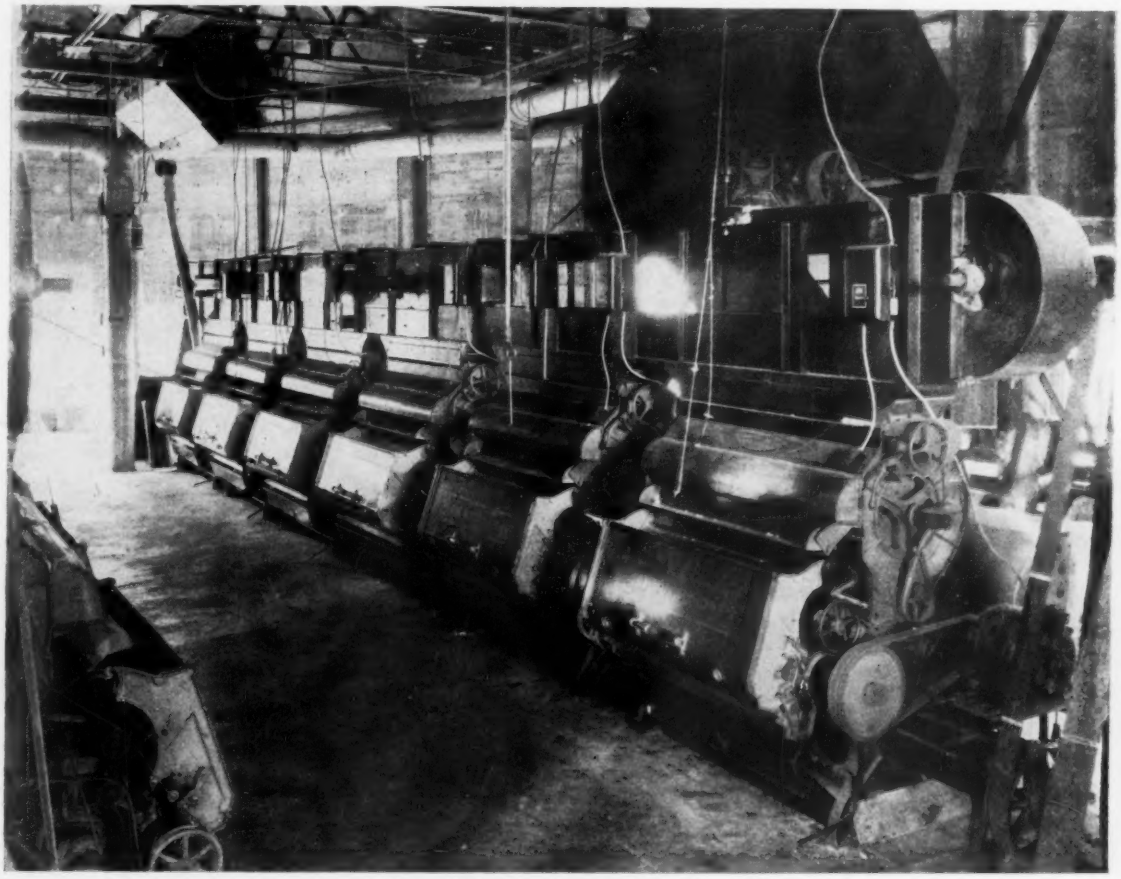
These two samples of cotton, magnified here five times, were grown in the same field, by the same man, and taken from the same wagon. The one on the left shows an improperly ginned sample, while the right hand sample was correctly ginned.

duces the strength of the fibers by reason of the increased resistance and pressure against the saw teeth. As the saws pass from the roll the cotton is in a more finely divided state than at any other stage of the process, and at this point a surprisingly large amount of motes and "pepper" is thrown off by centrifugal force. This moting action takes place before the cotton is removed from the saw teeth by a high velocity blast or jet of air.

Thus, Mr. Greenleaf has in fact extended his operations one step further back, giving him control and supervision of the handling of his cotton directly from the field—instead of taking it second-hand and risking the possibility of improper ginning. To put it briefly: just as many progressive mills have within recent years improved their preliminary opening and cleaning processes, he has gone back one step further. It is a demonstration of the theory I have heard expressed many times: that the ideal arrangement is to do the heaviest cleaning as far back as possible, in this way lightening the work of the succeeding machines and releasing them from the burden of excessive cleaning.

An instance of this is the picker room: Everyone will say that the primary object of the picker is to make laps —lappers, in truth, they call them in England. Yet, until comparatively recent years, most mills crowded their pickers, some apparently making the lapping action secondary to cleaning. With the introduction of more complete preparatory machinery, and the reduction of picker beater speeds, the load of cleaning has been shifted back, with the much improved results in production, in quality from lower grades, and in many other ways.

Mr. Greenleaf believes that the attention to this phase of manufacturing can properly be carried back at least one step further, to the ginning. Obviously, it is beyond reason to assume that mills generally could duplicate his practice. His local conditions have permitted his entrance into the matter in such a complete way. At the same time what he has done, essentially, is to incorporate the ginning in his manufacturing operation—to make it, really, the first process in his mill, so to speak. This demonstrates that a more active interest by the mills in the ginning of the cotton they use, is certain to bring about better results.



This shows one of the two batteries of all-steel gins operated by the Profie mill. There are two lines of six stands each, and each stand is driven by an individual motor.

It is Mr. Greenleaf's belief that through a lack of knowledge, many mills are accepting cotton improperly ginned, which works a hardship upon their machinery, and which, in fact, contains impurities and foreign matter which must inevitably pass through in the yarn and into the cloth; when proper, efficient ginning would have removed these impurities.

It was while operating his original ginnery that Mr. Greenleaf began to notice the difference in the cotton ginned at his plant and that secured from other sources. There

was a difference. One day he decided to keep a record of the amount of dirt removed from a wagon of cotton, and his tests showed that out of one lot of less than 1,500 pounds, his gin got 272 pounds of dirt!

His further investigations brought out other phases equally illuminating, and in the erection of his present modern plant, he has applied many features which are working to the advantage of the mill, and the benefit of the farmers, as well. It is no unusual thing, he told me, for his present plant to raise cotton from Low to Strict Low Middling, and from a Strict Low to a Middling grade, in the judgment of the mill's buyer. Asked as to the results of his ginning, he told me that, "We have always been entirely satisfied to realize that the cotton which we get from our own ginning is almost 100 per cent free of dirt and motes, which we know has materially cut down the waste production in our mill, to say nothing of the improved production and quality which must result in the yarn. Our gin gives us cotton not only substantially free from sand and motes, but likewise so much better freed of leaf and other trash that it is ultra-conservative to say that every bale ginned here has been at least one full grade higher than that same bale would have been if ginned by any other gin I have ever known or heard of. Many of our own organization, as well as many experienced ginners, when watching the operations last season, insisted that we were obtaining two full grades better than they had ever known was possible before." Thus the farmer secures a better price for his cotton, and Mr. Greenleaf gets a better cotton for his mill.

In addition to preparing his cotton in a thoroughly adequate manner to lighten the work of his mill machinery, Mr. Greenleaf finds another saving—and that is in the elimination of unnecessary purchasing of weight in the form of dirt and other foreign matter, at the price of cotton, when this foreign matter would either be removed in the mill, or go through to affect the quality of the yarn. Removing foreign matter at the gin gives a two-fold advantage: (a) it lessens the cleaning work necessary inside the mill; and (b) it improves the fiber itself by preventing its carrying this excess baggage through to later processes, perhaps to be beaten up into "pepper trash." The whole effect is to present to the mill a cotton whose quality, cleanliness and general character are known, a cotton prepared properly, under efficient supervision, for the mill's best purposes.

Mr. Greenleaf began the erection of his present gin last July, rushing it to completion for the last season. It is located close to the mill, so that if the farmer chooses to sell his cotton to the Profile mill, and it is satisfactory for their work, the handling is convenient. However, Mr. Greenleaf does not make a sale to his mill compulsory, operating the gin as a separate institution. He makes an established charge for the ginning, and is entirely willing for the farmer to dispose of the cotton as he chooses, but he has found that as a rule, when the cotton is acceptable, the farmer completes the entire transaction and offers the bale to the mill. The conveyor pipe taking the seed from the gin is equipped with a by-pass, so that if the farmer desires to secure his seed, it is returned to his wagon in the usual way. Otherwise, it is blown into a seed storehouse across the road, and is disposed of to oil mills, etc.

Some interesting incidents were related by Mr. Greenleaf in connection with the gin. Among other things, he said, he was gratified to see an appreciation on the part of the farmers of the plant. Incidentally, he pointed out, it demonstrates to them the advantage of picking and handling the cotton in a more efficient manner.

Whereas cotton used to "come to gin" one bale on a mule wagon, Mr. Greenleaf declared that last season, he found them bringing it in larger loads, and many farmers come even from adjoining counties to have their ginning done at Profile. One man used his truck to haul the cotton of neighbors to the gin, making several trips a day, leaving his own cotton to be picked by them in return for this service.

Mr. Greenleaf's experience demonstrates conclusively that proper ginning improves the value of the cotton to the mill. He has proven that mills generally can improve their cotton by a closer attention to the manner in which it is ginned. There is no question that a sufficient demand for proper and adequate ginning would bring about a tremendous improvement. Certainly the ginning is related to the character and grade of the cotton. This outline of how one man has utilized an opportunity for improving his cotton at the ginning stage is submitted for consideration, with the suggestion that individual and concerted attention to ginning be increased generally on the part of the mills.

Kaumagraph Opens Chattanooga Office.

The Kaumagraph Company has opened a new office at 417 Provident Building, Chattanooga, Tenn., in charge of Charles L. Hall, Jr. This office will serve manufacturers in Kentucky, Tennessee, Alabama, Mississippi, Louisiana, and the northwestern section of Georgia. The growth of industry in these states, the company explains, has made necessary the opening of the Chattanooga office as a means of closer cooperation with manufacturers in matters of identification, including trademark design, Kaumagraph trademark transfers, lithographic service, etc. This is the seventh branch office that has been opened by Kaumagraph in addition to the main office in New York City; other branches being maintained in Boston, Chicago, Philadelphia, Charlotte, Paris, Ontario, and Paris, France.

Cotton Grading Course at Clemson in Summer.

During the summer school session at Clemson College, Clemson College, S. C., a cotton grading course will be conducted. The dates of the summer school program are June 13th to July 21st, and the cotton grading course will be repeated from last year. The work will be given for either four or six weeks and the student may take the work for the full time or for any part of it. Ben I. Busby, cotton specialist of the U. S. Department of Agriculture, will be in charge of this particular work. The various cotton standards will be demonstrated to the students, and they will have an opportunity to study these in connection with several thousand cotton samples.

New Allis-Chalmers Bulletin.

Allis-Chalmers Mfg. Co., Milwaukee, Wis., have issued Bulletin 1118-E covering Types AR and ARY polyphase induction motors, which are their squirrel cage and slip ring type general purpose motors. This bulletin describes both the slip and roller bearing types, in standard horizontal and vertical constructions.

Pink Boll Worm and Boll Weevil

Recurring Problem of Pink Pest Induces Government Interest; Funds for Combatting Insects Requested.

BY CARL G. FOWLER.

Economics, or the business side of life, has its community of interests no less than politics, or the governmental side of life. Indeed, while government and industry have their distinct and separate fields of operation, they also have their points of contact and points of overlapping. Whether the Government, in its attention to control or aid of industry or agriculture, goes too far or falls short of fulfilling its proper function is always a matter for debate perhaps. But the Government is an institution of, by and for the people and at least should cooperate with industry, agriculture and commerce to make conditions favorable for the people in business.

Industry has its problems of evolution in demand and of marketing. The Government aids industry in compiling statistics of production, consumption and markets. Agriculture has its problems of marketing and demand, but beyond this it has the very perplexing obstacle of plant pests ever besetting it. Here is a problem which would be practically insurmountable except for aid from the Government. The cotton crop this year faces a double menace, with the boll weevil apparently threatening great damage and the pink boll worm again causing apprehension, if not consternation.

Thus we have found President Coolidge recently asking Congress for an appropriation of $400,000 to help fight the pink boll worm and subsequent to this request Representatives Fulmes of South Carolina and McKeown of Oklahoma asked the Director of the Budget to make provision for an appropriation of not less than $5,000,000 to help cotton farmers who are in need because of ravages of the boll weevil. The latter sum of money would provide loans to farmers who, by reason of losses due to the weevil, are unable to make their crops this year. The proposal includes the loan of money through the Department of Agriculture at five per cent interest, the security being a lien on the new crop.

These two propositions at least give prominence to an existing evil for which the cotton farmers are not to blame and for which they are entitled to every consideration that the Government can give them; also to a danger which, although at present "potential" rather than actual, has shown itself worthy of Governmental attention by reason of its "actual" depredations in other parts of the world. The story of the ravages of the pink worm in Egypt, India, Mexico and other places indicates that the suggested appropriation is the ounce that is worth a pound of cure. The sum of $400,000 certainly is a paltry total compared with what the country would lose if the pink boll worm were allowed to gain a firm foothold in the South.

What the boll weevil has done to the crop is a story that needs no repetition. The threat of the pink boll worm, too, is not new. But its recurrence in the news comes after a long time in which the subject has lain dormant, except for the Government, and probably the first alarms and previous experience of the country with this threat have been forgotten by many connected with the trade; or have hardly come to the ears of the new generation who have entered the business in the past eight or nine years, except through the delving into history.

It is a curious story and the Government should be congratulated for preventive measures which make it so. There is hardly a doubt that the ravages of the boll weevil would be multiplied by those of the pink worm, had the Government not taken a stitch in time. For other countries the pink worm has been the worst kind of cotton pest. For the United States, to write of the pink worm as a terrible threat might sound like crying "Wolf! Wolf!" where there is no wolf, were it not that information upon the experience of the other countries with the pest is so unmistakably convincing. An admirable vigilance apparently has been the only thing that has protected this country in the past fourteen years or more.

Before the World War began in 1914, a "circular of information" was communicated by the Secretary of Agriculture to manufacturers who used Egyptian cotton, warning them of the danger to the cotton industry in this country from the pink worm and asking them to destroy the picker waste from all foreign cotton. This circular, dated May 23, 1914, said that "the burning of the picker waste and seeds will very largely eliminate the danger of the introduction of this pest, and may offset the necessity of promulgating regulations governing and restricting the entry and use of such foreign cotton in this country."

This warning did not take effect immediately with some mills and so in the following February another threat of drastic action was issued. At that time it was stated that this was the only country growing cotton in which the *pink* worm had not become established. It was also stated then that this pest diminishes the production of lint, also cottonseed oil, fully fifty per cent wherever it prevails. Moreover, while it had been known to exist in cotton fields of the Far East for many years, it attains far greater activity whenever it becomes acclimated in new countries.

Cooperation was ultimately effected between Government and manufacturer and, with the introduction of fumigation of foreign cotton, in addition to the burning of picker waste and seed, the excitement over the pink worm subsided. Late in 1916, however, it was again to the fore because of the establishment of the pink worm in Mexico. Sometime about the middle of the year 1917 the suggestion came from Mexico that the pest was not maintaining there its record for destructiveness, but it is more suggestive that the Government did not relax its watchfulness and care. Its spread, at any rate, seemed to have been fast. The first appearance was figured to have been in 1915. The next year it had covered practically the entire Laguna district and was said to have caused a loss of 50 to 75 per cent in staple and approximately the same ratio in seed.

About a year and a half later a report by August Busch, who had been sent to the Laguna district by the United States Department of Agriculture at the request of the Mexican government, showed "a constant annual loss of from 2,000,000 to 8,000,000 pesos, or $1,000,000 to $4,000,000 in gold," through the ravages of this pest. He called attention to the fact that the United States had been forced to establish a quarantine along the Mexican border because of the pink worm and suggested the urgent advisability of a law to prohibit the growing of cotton in the Laguna district and other infested areas for two years.

In spite of efforts by our Government, the pest made its way into the United States and now renewed measures are necessary to fight it, because of a fresh invasion in western Texas. Previously it had entered Louisiana and eastern Texas, as well as Arizona and New Mexico. The current outbreak covers considerable of the cotton territory in three Texas counties and is regarded as perhaps the worst threat to the cotton belt since the original infestation of the worm in 1917, of the States just mentioned.

Dr. J. L. Webb, who is the federal entomologist in charge of cotton-insect investigations, states that measures of eradication and quarantine since the pink worm first entered this country from Mexico have kept the pest from becoming dangerous, that is from creating serious damage. It is a present concern rather as a potential menace than an actual destroyer. The figures regarding its destructiveness in Mexico, however, are significant of what a real menace this "potential" danger is.

Authorities state that eradication of pink worms in fields which are infested cannot be accomplished in the most effective manner until the new crop of cotton is harvested. Then the insects are still in the bolls which they have dwarfed or are curled up in the seed. The President's request asks that $100,000 of the proposed $400,000 be made available for a campaign against the pest after the 1928 cotton crop has been harvested.

Excellent Meeting Held at Birmingham

New Division of S.T.A. Organized; Large Crowd Enjoys Profitable Technical Discussion; Huntsville Selected for Fall Meeting

One more active discussion division was added to the organization of the Southern Textile Association when the Alabama-Mississippi-Louisiana Division was definitely formed at a meeting held in the Tutwiler Hotel, Birmingham, Ala., on Tuesday, March 13th. A splendid representation from the three states involved was in attendance, and a most promising group organization effected. The details of the affair were worked out in a morning session, and at the afternoon meeting there was some interesting practical discussion, which is reported later in this story.

This division was originated at the semi-annual meeting of the Association in Birmingham last October, when the need for a more local group covering the states involved was discussed. Oliver G. Murphy, superintendent, Shawmut Mill, Shawmut, Ala., was named chairman, and the meeting last week was called to perfect the organization.

Mr. Murphy was absent because of illness, and D. Singleton Cook, agent, Pepperell Mfg. Co., Opelika, Ala., presided, in a capable way. During the transaction of business details at the morning session, it was decided that two meetings will be held each year, one to cover the carding and spinning departments, and the other to be devoted to slashing, weaving, etc. By vote it was decided that the Fall meeting this year will be held at Huntsville, Ala., and carding and spinning will be discussed. The following meeting will be held in the Spring of 1929. Chairman Murphy was empowered to appoint discussion leaders for the various subjects. J. T. Phillips, superintendent, Buck Creek Cotton Mills, Siluria, Ala., was named secretary of the group.

Outside of the business, the chief feature of the morning session was an address on "The Value of Acquaintanceship in Business," by E. R. Cook, Sr., of Lanett, Ala. Mr. Cook was introduced by J. H. Howarth. He is the father of D. S. Cook, who presided at the meeting. His talk, stressing the importance of fellowship, understanding and friendship, as relating to the conduct of business, was most inspirational.

Mr. Cook pointed out that selfishness is the universal sin of the race, and that because of it, in the past many men have used methods unfair, unjust, and even brutal, in the conduct of business in its many stages. It is a source of gratification today, however, he said, that men are coming into a better appreciation of the fundamental principle laid down by the Golden Rule.

Discussing the value of meetings of the discussion type, he brought out that such occasions give a man an opportunity to mix and mingle with his fellows in the same business; to appreciate his viewpoint; it makes him stronger and dissipates the factor of fear and its influence upon his life.

After an enjoyable luncheon, an afternoon session was held, and the meeting opened for discussion by the members of technical problems. Mr. Cook, who presided, explained that the primary purpose of the meeting was the formation of the group, and that technical discussion would be emphasized at later meetings, but invited any questions for discussion from the members.

Discussion on Uneven Roving.

"Well, I came up here to find out how to make even roving," declared W. C. Ryckman, superintendent, Lane Cotton Mills, New Orleans. Asked as to his conditions, Mr. Ryckman said they make a 60-grain card sliver, 68-grain drawing sliver, .50-hank slubber roving, 1.25-hank intermediate roving. "We find that our laps are normally fair; we weigh them yard for yard. I suppose since I have been in the mill I have weighed a hundred thousand yards of lap. We make a 15-ounce lap, and taking it on the whole, I think when we have one 14½ ounces on one side and 16½ on the other, that we get a fairly good lap. We get a fairly good card sliver, but when we get further along we get worse. We have never been able to determine

why we do not get good roving." He added that he has two processes of picking and two processes of drawing. Asked as to his drawing roll speed, he said this is 385 r.p.m.

"Do you allow for moisture in the laps?" asked J. H. Howarth, assistant superintendent, Lanett Mill, Lanett, Ala. Mr. Ryckman declared he had tried that for several months, but had been unable to notice any beneficial effect.

"What variation do you have in your card sliver?" asked H. D. Agnew, LaFayette Cotton Mills, LaFayette, Ala. Someone else asked whether Mr. Ryckman was referring to unevenness in appearance, or unevenness in weight or sizing. He replied, "Unevenness in weight; the roving looks pretty and the weight is there, but it varies. Our intermediate roving is supposed to weigh 80 grains, and out of 20 from five bobbins, we will probably get about sixteen reelings that will be 79 or 80, but the first thing we know, we will get an 82, and we think when we do it is bad."

Allowing for Moisture in Laps.

Mr. Howarth said he had been told that to regulate the laps in accordance with the moisture in the picker room, having small weights to place on the lap scale, and working up a table for these weights in accordance with each change in humidity, would aid in keeping even numbers. He said, however, that he could not explain to himself how to reconcile the fact that when the lap is made, "it might

O. G. Murphy, Chairman of the Ala.-Miss.-La. Division.

be raining like the devil, and when it gets further on in the mill it might be as dry as old Harry outside."

J. D. Jones, of the Shawmut Mill, declared that with proper humidity conditions further in the mill, this matter will take care of itself and adjust itself properly. Mr. Ryckman said he had tried this method, in a way similar to that described by Mr. Howarth, but that he had not been able to get any better results, and had believed it better to go back and weigh the laps to a definite standard. Mr. Jones brought out that conditions in different mills were relative, and that what might apply in a coarse mill would not be satisfactory in a finer goods mill. Mr. Ryckman added that on a 50-grain roving, a variation of ten per cent would be only .5 grain, while on an 80-grain strand it is .8 grain and looks much bigger. "I am living in hopes of the millennium," he said, "when I can see it weighing 80 grains all down the line."

"I find that in rainy weather my cards drop more than in dry weather, and it loses the weight it gains in the moisture in the lap," said W. Y. Harrison, superintendent, Laurel Mills, Laurel, Miss.

D. S. Cook said he uses the system of regulating the weight of laps in accordance with the moisture content, and that "while it does not eliminate the changing of gears altogether, nor does it regulate it like you would like to see it, our experience has been we have seen an improvement in the weights of our yarn and roving since using it."

Mr. Ryckman said that he has had no humidification in the card room, and requested discussion from any men present who are using humidifiers in the picker room.

Humidity in the Picker Room.

J. L. Byers, superintendent, Avondale Mills, Alexander City, Ala., stated that he uses atomizers for spraying mois-

D. Singleton Cook, Agent Pepperell Mfg. Co., Opelika, Ala., who presided at the Birmingham Meeting.

ture onto the laps. The heads are located in front of the finisher pickers, and the moisture reaches both sides of the lap as it is coming off of the machine. "It makes a much firmer lap," he said. He also has the card room humidified. Questioned by Mr. Cook, he said he figures that he puts in about 7 per cent moisture in this way; that it does not affect the cleaning at the cards and does not injure the card clothing. He has had it in operation about two years, he said. His mill manufactures sateens, drills and twills. Mr. Harrison says he has a system of applying moisture in the cotton, by spraying it in the opener, but uses this only in extremely dry weather, as he finds that he cannot clean the cotton as well and that it prevents getting the "pin-and-pepper" trash out of the cotton.

In explaining his system, Mr. Byers had made the statement that when the cotton reaches the mill, it is "bone-dry" and that his method is used to add moisture to it. J. D. Jones raised a question concerning this, and Mr. Byers qualified his statement by explaining that during recent years, there has been comparatively little rainfall, and that in addition, by the time the cotton is drawn through the preliminary machinery by the fans and condensers, it has been dried out somewhat, and that his method is to restore an approximately normal content to the cotton.

"My experience has been that if you put cotton down in a room in a bone-dry state, it doesn't take but a very little

while for it to take on the percentage of humidity that prevails in the room," said Mr. Howarth. "With these sprays located in front of the finisher, these laps are going to take most of the moisture first, but some of that moisture will get to the back of the machines, it seems to me." In connection with the moisture content of cotton, he asked J. L. Jennings, assistant superintendent, Fairfax Mill, Fairfax, Ala., to discuss it.

Moisture Content of Cotton.

"I find that the average moisture content of cotton in the bale is nearly ten per cent," responded Mr. Jennings.

"We find that most all the way through from the bale, it sustains almost its natural moisture," added Mr. Howarth. "I have never made any tests on the finisher lap, but I am going to."

Mr. Agnew said he had made a great many tests as to moisture content, "and my experience has been that with our cotton, and our climate, it averages about 8½ per cent in the bale, and on down through the picker room in the finished lap he gets down to about five per cent, and it stands at about the same thing through the cards. At the drawing, where we begin our humidification, it begins to pick up, and as it is finished in the spinning our moisture will average about 5½ per cent."

Reverting back to Mr. Ryckman's specific problem, Mr. Harrison declared he believed more even work would result if he reduced the drawing roll speed from 385 r.p.m. down to around 240. He said he had done a similar thing with good results.

"In an off-hand way, without knowing your specific conditions, if you could afford to, and make your production, and cut down your drawing speed to the limit, you should certainly show an improvement in evenness in your yarn," declared Mr. Cook.

Mr. Ryckman explained that his physical lay-out did not permit cutting the drawing speed in half; and that as a matter of fact he did not believe that there would be much gained in the running of the work. Mr. Harrison had said he had lost about five per cent in production, by doing it, due to the reduced number of stops. Mr. Ryckman was of the opinion that he would lose 50 per cent in production with no improvement as to stops. It was then suggested that, if it could be worked out on an economical basis, that he might possibly afford to run the drawing at night in order to get the benefits of a lower speed. "The only times they stop now," he said, "is when the ends run out at the back." Mr. Howarth declared that he had cut out one process, thus reducing his speed, and had made evener drawing.

"I have always considered drawing as a necessary evil," declared Mr. Ryckman. "Nothing does the cotton more harm than the drawing, so far as strength is concerned, and we use drawing only because we cannot get the 'evening' in any other way."

The Speed of Drawing.

Mr. Cook brought up the matter of running one and two processes of drawing, and Mr. Ryckman declared he had tried a small section on one process for a while, cutting the speed 25 per cent, but his recollection was that the results did not justify it. Mr. Cook brought out that a number of Carolina mills have gone from two to one process, using the second line for the single process and cutting the speed.

On the other hand, Mr. Ryckman declared that "I do remember twenty years ago running two processes on 20s single warp—I think it was in the Maginnis mill and we were making chambrays at the time, and we wanted to make a more even yarn and we went from two to three processes, and improved our yarn, and made more even yarn with the three processes, and from that experience I cannot see how you could make more even yarn with one process."

Influence of Uneven Staple.

"I have had quite a bit of experience with uneven work," declared L. A. Funderburk, superintendent, New Canebrake Cotton Mills, Umontown, Ala., "but I find that a lot of variation in the numbers comes from uneven cotton. You can have your machinery regulated and set as perfectly as possible, but if you haven't got even staple cotton, with uniformity and body, you are going to have uneven yarn. One time I was at a mill where I had to take up the cotton. They sent me after it, and we were supposed to get full 1 1/16-inch, and if I couldn't get that I would try to get it just a little shy of that, but get it all of the same general length. And then when I would go back after another hundred bales, I might get the full length, and in running those together, we would have trouble, and would have to make 2 or 3 teeth changes in the spinning room to take care of it. I know if you get your cotton mixed up it will make a difference. I believe you get more uneven yarn from uneven staple than from any other cause."

Mr. Howarth said he was just going to bring that point up. He explained that his group of mills operates a testing laboratory at Shawmut, and that he sends cotton down to be sampled as to staple, and sometimes finds as much as forty per cent pulled before any of the intended staple is found. Now, he said, "if you have a cotton that is supposed to be ⅞-inch and 55 or 60 per cent of it runs from ¼ to ¾ of an inch, you certainly will run into trouble. You have many things to take into consideration. Sometimes we will run that cotton and can see it shedding on the warpers and back of the slashers; that isn't the fault of the slashers. Whenever we run into a condition of that kind we always get that variation."

The Effect of Heavy Carding.

Discussing Mr. Ryckman's problem again, Mr. Jennings brought out that, "we have gone from the pickers to the drawing, and have overlooked the cards. I think you can watch the weights in the picker room, and the moisture, and slow down your drawing, yet still if you card too heavy you will cause unevenness there. Most people do card too heavily."

Asked to his card production, Mr. Ryckman replied that he cards 200 pounds in eleven hours, making a 1.25-hank intermediate roving which goes to the spinning frame for 7s and 8s yarn.

Speaking frankly, Mr. Cook said, "I do not see how you can hope to have even work carding that heavily." It was suggested that Mr. Ryckman apparently was trying to "eat his cake and have it, too." Mr. Jennings expressed the opinion that Mr. Ryckman is carding too heavily, and that to cut this down to about 160 pounds in 11 hours, and put eveners on the breaker pickers, and slow the drawing down, would be of assistance. Mr. Ryckman said his breaker laps average within three ounces of the yard weight, and that he believes that is pretty good.

"I do not see any trouble with his picking—using two processes on 8s," declared Z. H. Mangum, superintendent,

Avondale Mills, Birmingham, Ala. "I have two on 26s to 40s, with only two beaters."

"Mr. Jennings said I was carding too heavily, and I would like to hear from several men as to what is the proper production of a card to give good work," requested Mr. Ryckman.

Mr. Howarth, in answering, extended the hand of sympathy to Mr. Ryckman, declaring that he, too, has to card around 200 pounds a day. As to the proper amount to card, he said, "I don't know, because I have to run 200. I would like to run 100." He added to this that he felt like he would be on Easy Street if his cards could make around 140 pounds a day. He then told of a visit to a mill where a man was carding 60 pounds a day, indicating that this seemed to him like an ideal to be reached some time, maybe.

"On 1.25-hank roving, I would suggest 160 pounds a day, not over that," declared Mr. Jennings.

"I think it depends largely on whether the quality, or the cost, or the strength is most important," observed Mr. Cook. Mr. Jennings said he believed it could be made to justify the cost by carding lighter and making it up in the production on the roving frames, spinning and weaving.

The Porcupine or Buckley Beater.

The next question brought up was from Mr. Agnew, who wanted to hear experiences with the porcupine or Buckley type of beater in finishers. Mr. Jennings said they use a Buckley in a single-beater breaker, with blade beaters on the intermediates and finishers, but had made no tests of especial interest.

"Personally, I have not made any experiments on this point," said Mr. Cook, "but one of the mills in our group replaced Kirschners with the porcupine in the finisher. Before that they had had trouble with neps and balled-up places, and they claim this absolutely eliminated the neps."

"I am getting ready to make some experiments on the subject, and I asked for experiences for my own information," explained Mr. Agnew. "I have breakers, two beater machines, and single beater finishers. I took it up with the machine builders and they recommended this porcupine beater to be put in as the first beater next to the apron on the breaker, and leave the other three-blade beater in the breaker. I have only two breakers, and I am going to put it on one machine and see how it works out.

Mr. Ryckman declared that here his experience was to the contrary to that related by Mr. Cook. He said he had the Buckley beaters as complete equipment on the breakers, and took them out and put in blade beaters, and at the same time took out the blade beaters in the finishers and replaced them with Kirschners and got much better results.

Stripping Cards.

Mr. Ryckman had another question: "When we strip our cards I believe it is customary to allow some of the sliver to run out on the floor. I want to know just how much is necessary to run on the floor after stripping before the sliver returns to its normal weight?"

"We try to make them run it out on the floor," responded Mr. Agnew, "but they don't run it long enough much of the time."

Mr. Harrison explained that he allows the time for stripping the next card to allow the sliver to run out on the one just stripped before putting it up again, and said this was about one minute. Mr. Agnew said they tried to let it run about 2½ minutes before they put it back. "We strip every other card all the way through, and then go back around again and strip the alternating ones. We have an idea that helps the evenness of the work."

"Why?" asked Mr. Cook.

Mr. Agnew explained that doffing at the same time, the cans would come out together, and that in being put up behind the drawing, this tends toward a better distribution of the uneven cans; because it is almost certain there is likely to be a difference in the weight from can to can.

The Belger Continuous Card Cleaner.

At this point there was some discussion of the Belger continuous card stripper. During the previous discussion, Mr. Mangum made the comment to his neighbor that he had one card from which he was getting an even sliver, and he was requested to elaborate on this. He explained that he referred to the one card which he has equipped with the Belger device for stripping the cylinder continuously while running. He said he had made several tests on it, and his findings were just about what Mr. Belger had claimed. Mr. Cook asked whether there was any effect upon the fillet.

"We thought at first it would dull the cylinder fillet," answered Mr. Mangum, "and we ground it twice as often, but Mr. Belger suggested that we shouldn't grind it so often." He added that Mr. Belger suggests burnishing the fillet. "So far as our observations and tests are concerned," continued Mr. Mangum, "the breaking strength is proportionately higher as the weight increases. We ran tests on this and two other cards without this attachment, and we obtained about 1.13 per cent heavier roving from that than from one of the others, and almost 1.5 per cent heavier than from the third. The average was around 1.25 per cent heavier roving from the Belger card than from the other two, and the breaking strength was proportionately higher, but no more than the difference in the weight justified.

"So far as the looks of the web are concerned, I can see no difference between this and that from any well-ground card. The long fibers between the strips from the flats are fewer—he claims it puts the long fibers back into the work, and our observations bear him out in that. You do away with the winding of the flat strips; it will almost break itself loose and drop down on the bonnet."

J. H. Howarth, who is also experimenting with the attachment, was requested to discuss it. The only test he has made on it was in connection with the weight, he said, and also with regard to the seed and leaf in the cloth. He said he took six pieces of cloth, three from yarn made from sliver from the Belger card and three from regular sliver, and put them on a table. His men all selected the Belger sample first, he said, but when it came to the next two it was a hard thing to pick them. "We have not got to the end of it," he said. "We like it and we think there is something in it."

"What about the cost?" asked Mr. Agnew.

"I do not know just what it costs," replied Mr. Howarth, "but they claim it will pay for itself in two or three years. I really think there is something in it." He added that he skips grinding, but grinds a little longer to make up for it.

Mr. Harrison next brought up the question of whether it is necessary to bring the card to a complete stop, in the regular process of roller stripping, in order to secure efficient results.

"That is something I had never thought of," said Mr. Ryckman, "but I am going to test it."

The opinion was expressed by Mr. Harrison that he does not get efficient stripping by running the card 50 or 60 turns a minute; he puts the roll on and runs the card just as slow as it will run the cotton out. Running the card 50 or 60 turns a minute will make cloudy webs, he said.

At this point, on motion of Mr. Mangum, the thanks of the Alabama men were extended to the Textile Operating Executives of Georgia for their courtesy and thoughtfulness in extending invitations to attend the meetings of the Georgia body; and the Georgia men, in turn, were invited to be present at future Alabama meetings.

Making 40s Out of ⅞-inch Stock.

Mr. Frost, superintendent of the Strowd-Holcombe Textile Mills, Birmingham, Ala., asked suggestions for a layout for making 40s out of ⅞-inch cotton, using three processes of fly frames. He gave the following organization: 12-ounce lap, 45-grain card sliver, 47-grain drawing sliver; .80-hank slubber roving, 12x6 machine; 2.30-hank intermediate roving, 10x5 machine; and 7.40-hank speeder roving, 8x4 frames. He requested any suggestions. He said his spinners run eight sides.

It was suggested that the 8x4 speeders are too large; that the bobbin is so heavy that extra twist is necessary in the roving. H. B. Miller, superintendent, Cherry Cotton Mills, Florence, Ala., said he had had a similar experience, and that it seemed to him that the machinery was too heavy for 40s. This opinion was also expressed by Mr. Mangum.

Joe Jennings said he makes 30s out of ⅞-inch cotton, but believed that 1-inch stock would help Mr. Frost. Mr. Jennings gave the following organization for 30s: 13¼-ounce lap, 50-grain card sliver, 52-grain first drawing sliver, 54-grain finisher drawing sliver, .80-hank slubber roving, 2.50-hank intermediate roving, and 6.50-hank speeder roving, 8x4 frames.

Mr. Jennings said his spinners run eight sides, and that, using the ⅞-inch stock, his spinning front roll speed is 108 r.p.m., the standard being 116, but that when using 1-inch cotton, he can get the speed up to 118 r.p.m., with just as good breaking strength. Answering questions from Mr. Frost, Mr. Jennings said he uses a 1¾-inch ring, double flange, with an A-1 circle, 3-0 traveler.

The final question was asked by W. M. Privett, of the Stonewall Cotton Mills, Stonewall, Miss., who wanted to know the proper size drawing trumpet to use on a 66-grain sliver. He said he is using a ⅛-inch opening and asked whether this was big enough. One man expressed the opinion that ⅛-inch is too small for a 66-grain sliver. He said he used this diameter for a 50-grain, and as he increased in the sliver weight, he used a set of reamers to enlarge the trumpet until it would properly condense the strand. No other opinions on this were expressed, Mr. Cook pointing out that the biggest trouble is in getting the trumpets to the same diameter. There being no further discussion, the meeting was adjourned.

Saco-Lowell Takes Over Metallic Roll Co.

Saco-Lowell Shops, Newton Upper Falls, Mass., announce that they have taken over the entire manufacturing and servicing of metallic rolls as formerly made by the Metallic Drawing Roll Co., of Springfield, Mass.

Plans for the Southern Textile Exposition in Greenville Next Fall.

The work of allotting space to the exhibitors for the Eighth Southern Textile Exposition, to be held in Greenville, S. C., during the week of October 15th, is practically completed. The problem of quartering those applying has been difficult, and has required much time. Some of the exhibitors will be found in parts of the building where they have not been seen before, and the management acknowledges a splendid spirit of cooperation from the exhibitors.

The new steel annex is a handsome building. It stands practically where it was at the last exposition, except that it has been moved 48 feet further north. A concrete floor and two additional doors have been added; one of these doors is in the east side of the building, leading to a walkway 12 feet wide extending to Academy Street. At this door a ticket office and doorkeeper will be installed, thus bringing in a number of visitors through the annex, it is pointed out. The Washington Street door will continue as the main entrance.

To the south of the annex and extending nearly to Washington Street there will be erected a two-story temporary addition designed so that it has the effect of being a part of the main building. This, according to the management, will be occupied by some of the leading exhibitors. At the east end of this addition will be located a refreshment bar.

Committees are now being selected to handle the various features of the program for show week. Principal among these is the entertainment of the Southern Textile Association, which will hold its Fall convention on Friday, October 19th, in the ballroom of the Poinsett Hotel.

Reservations for rooms will be handled by a special committee, as usual. The entire eleventh floor of the Poinsett Hotel has been reserved by W. G. Sirrine, president of the exposition, for mill executives who may visit the show. All during the week a special clerk will be on duty at the hotel to handle the rooms on this floor, thus assuring textile executives who have not secured reservations the certainty of being accommodated, it is explained.

Two DuPont Colors.

E. I. duPont de Nemours & Co., dyestuff sales division, Wilmington, Del., have issued a circular on Pontamine Fast Heliotrope BL, a direct dyestuff especially recommended by the company for use on the padder, it being stated that it works well on both silk and rayon, and is considerably redder and a trace brighter than Pontamine Brilliant Violet B. Another color on which a card is issued is Sulfanthrene Red 3B Paste, a vat color of extremely bluish red shade, for self shades and combinations.

American Association Convention at Richmond.

The 32nd annual convention of the American Cotton Manufacturers Association will be held at the Hotel Jefferson, Richmond, Virginia, on May 17th and 18th. This will be a most important occasion, coming at such a propitious time in the affairs of the industry. Elaborate entertainment programs are planned by the Richmond committee, and Secretary W. M. McLaurine of the Association is shaping an excellent schedule of addresses and discussions for the convention sessions.

Dyers and Finishers Meet at Charlotte

New Division of Southern Textile Association Holds Meeting; Dyeing, Bleaching, Mercerizing, Finishing Discussed; Good Attendance and Interesting Program

Reflecting thorough preparation, and with an enjoyable and interesting program efficiently executed, the second meeting of the Dyers', Bleachers' and Finishers' Division of the Southern Textile Association, held in Charlotte, N. C., on Saturday, March 17th, was a distinct success, with a surprisingly large attendance. Paul F. Haddock, southern manager, A. Klipstein & Co., Charlotte, was general chairman of the meeting, and the details were handled by J. M. Gregg, secretary, Southern Textile Association, and other Charlotte men who looked after various features of the work.

The meeting consisted of three sessions, beginning with a luncheon at the Southern Manufacturers Club, at which

Paul F. Haddock, General Chairman.

several papers were read. The second session consisted of round-table discussion by the different groups composing the division, no report of these discussions being made. On Saturday evening the concluding feature, a banquet given complimentary to the guests by various Charlotte dyestuff, chemical and other concerns, brought the successful meeting to a brilliant close.

The division is sub-divided into five sections: "Bleaching and Finishing," with Julian Robertson, manager, North Carolina Finishing Co., Yadkin, N. C., as chairman; "Dyeing," T. C. King, superintendent of dyeing, Cramerton Mills, Cramerton, N. C., chairman; "Mercerizing," B. F. Mitchell, superintendent, American Yarn & Processing Co., Mt. Holly, N. C., chairman; "Dyestuffs and Chemicals," John L. Dabbs, E. I. duPont de Nemours & Co., Charlotte, N. C., chairman; and "Bleaching, Dyeing and Finishing Machinery," Fred H. White, southern agent, Gaston County Dyeing Machine Co., Charlotte, N. C., chairman. Discussions of the bleaching and finishing, dyeing, and mercerizing divisions were held in the afternoon.

A splendid luncheon was served at 1:30 o'clock, this opening the meeting. General Chairman Haddock presented six men who discussed various phases of the dyeing and finishing industry, as follows:

"General Relationship of Dyeing, Bleaching, Finishing and Mercerizing Processes," D. C. Newman, assistant manager, E. I. duPont de Nemours & Co., Charlotte, N. C.

"Dyeing Fast Vat Colors," C. E. Brookes, sales manager, Boremco Associates, Charlotte, N. C.

"The Dyeing of Rayon," E. F. James, president, Carolina Dyeing & Winding Co., Mount Holly, N. C.

"Dyeing and Cross Dyeing of Celanese in the Presence of Other Fibers," T. B. Meisenheimer, southern manager, Celanese Corporation of America, Charlotte, N. C.

"Preparation and Aftertreatment in Mercerizing," J. W. Ivey, Mathieson Alkali Works, Charlotte, N. C.

"Care and Upkeep of Bleaching, Dyeing and Finishing Machinery," J. Ebert Butterworth, vice-president, H. W. Butterworth & Sons Co., Charlotte, N. C.

J. M. Gregg, Secretary-Treasurer.

Mr. Newman's paper was prepared mainly as a discussion of the real function of the bleacher, mercerizer, dyer and finisher in the world's scheme, and pointed out the importance of color in the affairs of life, and emphasized the high office of the dyer and finisher in producing fabrics to fill these needs. Mr. Newman likewise stressed the complete interdependence of each of these phases, including also the machinery and material manufacturer.

"The Dyeing of Fast Vat Colors."

The next paper was that of Mr. Brookes, who spoke in part as follows:

The subject assigned to me is not that of dyeing vat colors, but something rather more, that is, the dyeing of *fast* vat colors; and since this is a meeting of the dyers, bleachers, and finishers let us take it for granted that we are speaking of and meaning fast to bleaching.

Dyestuff manufacturers introduced vat colors to the textile trade several years ago, and let us presume that they had one main thought in mind and that was to produce dyestuffs that would stand chlorine, whether it be chlorine in the laundry or chlorine in the bleachery, in addition to boiling soaps, sodas, sours, etc.

In order to dye fast vat colors let us see first what we have to work with. There are three groups of vat colors, sold under many different trade names. In reality they are as follows: the Anthraquinone group; the Indigoid group; the Carbazol group.

These groups vary somewhat, and we also find in both practice and theory that different colors in each group and also some in the same group vary in their properties; I mean vary from a standpoint of dyeing temperature, exhaustion, level dyeing, and also fastness.

It therefore seems to me that in order to dye colors that will stand bleaching and to be sure that he (the dyer) is dyeing fast vat colors, it is absolutely imperative that the dyer be very careful in his selection of the vat colors to be so employed, always taking into consideration the fabric to be subsequently produced and decide whether the piece goods, such as "chambrays," have merely to stand the laundry tests or whether he is dyeing yarns that have to go into piece goods such as towels, shirtings, handkerchiefs, etc., that have to stand piece bleaching.

I am somewhat afraid we have been a little too careless. Too many dyers are prone to think they are dyeing vat colors and that vat colors are *fast*. Gentlemen, let me tell you one and all, vat colors are only *fast* when they are dyed *fast;* and I can prove this by the following facts—not facts that I shall give to you but facts I know you are familiar with. Let me ask you, isn't it a fact that you know cases where the self-same vat color dyed in one plant stands bleaching with no marking off or bleeding, yet that same color dyed in another plant will not stand the same bleacher's process?

Since in all practice there is the human element involved, processes, like products, will vary somewhat; but even though both the dyer or the bleacher may vary their process from that employed by their neighbors, I do contend that certain basic principles must be adhered to.

All dyers know the general and accepted process or formula for the dyeing of vat colors, and I am not here to endeavor to change the accepted methods. Rather than that, I would feel that my time had been well spent if I could bring out the one little thought or point that might make it more easily possible to do the actual dyeing and to adhere to the regular accepted method at the same time.

We are all agreed that vat colors are dyed approximately as follows, according to formula:

First: *Wet out* or *boil out* the raw cotton, yarns, warps, tubes, or skeins to insure proper penetration, and set the bath at the dyeing temperature with the addition of a little hydrosulphite and caustic soda.

Second: Reduce the dyestuff with the necessary chemicals that the formula calls for and add same to the machine.

Third: Dye the usual length of time.

Fourth: Wash thoroughly to eliminate any excess color and chemicals from the fibers.

Fifth: Oxidize by developing or soaping, according to the specific requirements.

Theoretically, this should give us fast vat dyed colors, and on warps where the washing action is physical and complete I do believe we are safe; but on closed type machines, such as raw stock circulating, package, or beam machines, it is well nigh impossible to get complete washing, because the stock forms a perfect filter. Therefore, where it is impossible to get a real physical action in the washing, there is only one thing left for us to do, and that is resort to a chemical action. Such chemical action, in my opinion, is handled by the addition of a sulphuric acid sour to the wash to absolutely insure the removal or naturalization of the caustic soda employed in the dyeing. This caustic soda must be eliminated by some method before the oxidation is attempted, and where we can't wash it out I say kill it.

In concluding, let me say that all the text books tell us vat colors will stand almost anything in the bleaching process with the exception of a caustic soda boil. Now then, gentlemen, how can the bleacher, no matter what process he uses, boil without caustic soda if it is present in the yarn when he receives the goods? Bleaching of colored striped fabrics is plenty hard enough even when the bleacher knows what chemicals he is using, and almost impossible if the dyer ships the bleacher fabrics containing chemicals in the colored stripes. We can not be too careful; washing and souring cost very little. Be sure and eliminate all the caustic soda and hydrosulphite before attempting developing, and remember that old proverb—"A stitch in time gathers no moss."

The talks of Mr. James, Mr. Meisenheimer, and Mr. Ivey and Mr. Butterworth came next. It is regretted that lack of space in this issue prevents the inclusion of all of the papers. Mr. James' talk appears on another page in this issue, and it is hoped to utilize the remainder in some succeeding number.

Through a misunderstanding as to subject, the talk of C. D. Potter, Roessler & Hasslacher Chemical Co., on "Bleaching Colored Striped Piece Goods," was held until the executive session of the bleaching section in the afternoon.

The concluding paper was read by Mr. Butterworth. It covered the

"Lubrication and Upkeep of Bleaching, Dyeing and Finishing Machinery."

and Mr. Butterworth spoke in part as follows:

In a short paper of this sort, dealing with a subject so broad as the lubrication and care of textile finishing machinery, I shall touch only the high spots, or those things which our organization feels so important that they are really essential.

The care of textile finishing machinery is in many ways more important than the selection of the machines themselves. We may be able to do *some* satisfactory work with a poorly selected machine properly lubricated, but it is practically impossible to do any acceptable work even with the best machines without proper lubrication.

When we use the term "proper lubrication" we mean lubrication applied to bearings which have been properly prepared. Very frequently in improperly cleaning machines dirt is washed down into the running parts, thus washing off the lubrication and impairing the efficient operation of the bearing. Many troubles encountered in finishing are due to improper lubrication; excessive horsepower is also due to the same cause. To illustrate—some time ago we received a call from a mill in North Carolina,

a large calender was "looping back." In other words the cloth was hanging or bulging from the top roll. This had been neglected and the bearings had apparently never been cleaned. After proper attention the calender was started and the trouble was entirely remedied—but it cost an unnecessary trip from Philadelphia to do it.

Another case shows where excessive horsepower was used because of poor lubrication. We made a series of tests at one time with the old type of fixed lubrication. This at best is only partial lubrication. Then we carried on the test with automatic or continuous lubrication. The difference was amazing. There were nine 38-cylinder drying machines in the test. After the installation of automatic oilers, the total amperes required for the electrical operation of the machines dropped from 320 to 188 and the approximate horsepower required dropped from 47 to 28. The total cost of the installation on nine machines was $684. How many times this cost would be saved in the reduction of electrical power required.

Lubrication means not only the application of the lubricant to the surface but embodies cleanliness and watchful care of all driving or driven parts as well. Lack of proper lubrication means high coal or electric bills due to excessive consumption of horsepower and a consequently decreased profit.

Of equal importance with lubrication is the necessity for cleanliness and care.

For instance, starch boxes: These should be washed out regularly. When in use see that the starch is maintained at an even level and not allowed to overflow and waste. Dye vats: Here the importance of thoroughly cleaning and washing cannot be stressed too much. Just a trace of color carried over in the box when another color is being run will successfully ruin the shade.

Then take the all important subject of rolls. More things can go wrong because a roll has not been cared for than for almost any other reason. Before pointing out a few of these troubles let us run over the various *kinds* of rolls we have to deal with. They are rubber, wood, pressed rolls (cotton, combination husk, paper), brass, iron, steel, tube rolls of various kinds, etc. These demand individual treatment.

Rubber rolls tend to wear down in grooves. They may have soft spots or "blisters." Other causes may make it necessary to turn them down. Here is where great care must be taken. There are several methods that might be used, depending upon the equipment selected. Some use ordinary machine lathes on which the necessary equipment is attached. In grinding, either an over-head drum type to drive the wheel from a wheel spindle or a tool-post grinder is used. If the tool-post method is used, it is recommended that the motor be sufficiently large in order to permit of taking a sufficient cut into the rubber covering and suggest at least a three (3) horsepower motor, which would be ample for the work. This tool-post grinder is attached directly to the tool-post of the lathe. Rubber covered rolls should always be ground dry, not wet. It is recommended that you use a wheel about 12 inches diameter by 1½ inches face. Wheels, the specifications of which are, Grit 40, Grade 3, Bond C-3-A are found to be most satisfactory. In grinding rubber covered rolls, the traverse speed of the carriage or tool-post is approximately one inch per minute, or the slowest speed at which the lathe will run. The revolving speed of the roll being ground should be fairly slow or approximately 20 revolutions per minute. The wheel speed should be approximately 1,800 to 2,000 r. p. m.

This may appear to be rather slow work, but experience shows that in the long run, it is best because when faster speeds are used a burning effect is very apt to occur, causing the wheel to gum up and the surface of the roll to burn.

Grinding rubber covered rolls in this manner will leave slight wheel-marks on the surface. These marks can be removed in the following manner: Several plies of fine emery cloth should be mounted on a board, the object of the several plies being for a cushioning effect. This is held against the revolving roll, the speed of which is increased to the fastest speed at which the lathe will run, and oscillated across the surface by the operator, moved back and forth and not held stationary in any one place, which would cause a flat spot to result. This later operation to remove the wheel marks can be efficiently done with a little practice by the operator.

Wood Rolls: When these rolls are not in use they will dry out and crack and so become worthless, unless they are cared for. The usual methods are to rig a perforated pipe over the rolls for their full length and allow water to trickle over them continuously. Other mills soak burlap or other materials and wrap up the rolls.

Others have convenient ponds or troughs and keep them submerged.

Pressed Rolls: Here we have a slightly different condition to meet. These rolls, as most of you know, are built in hydraulic presses under pressures which vary from 500 to 1500 tons, depending on sizes, materials, use, etc. As these rolls run in the mangles and calenders, the tendency of the materials, out of which they are made, is to work toward the ends. This causes the diameter of the roll to be slightly larger near the heads than it is in the middle. The consequence should be obvious: the goods going through the machine will not be mangled (or calendered). The remedy is to turn down the ends of the rolls for a distance of 4 inches from the heads. The cut starts at 1/16 inch and tapers to 0 inch.

Other troubles from pressed rolls occur where some foreign body is accidentally passed through the nips. It is possible sometimes to avoid turning down the roll to eliminate the hole, so caused, by putting the dead set pin in your levers at the top of the housings and "running in" the damaged roll. This is done by pouring warm water on the roll, meanwhile running the calender. This treatment often brings up the material of the pressed roll and corrects the damage.

Brass, Steel and Iron Rolls: When anything goes wrong with these rolls about the only remedy is turning down in the lathe.

Tube Rolls: These are generally used as immersion rolls, carrier rolls, etc. It is absolutely essential that they be kept in perfect alignment. If they are "out" they will tell you about it themselves by putting the weft out of line. Then instead of looking for a weft straightener or other mechanical corrective, check up on the alignment of your rolls.

Rolls that run in liquor must be kept free running. Usually the bearings of these rolls lubricate themselves. Some bearings are located of necessity near starch boxes, dye vats, etc., care must be used here to keep the lubricant

from getting in the boxes or streaky dyeing will result.

During the afternoon, group meetings of the various sections were held, and much valuable information developed. The committee decided to prohibit reports of the afternoon sessions at this meeting, but it is hoped this restriction will be lifted at future discussions.

The Banquet.

The banquet, the funds for which were contributed by 33 firms handling dyestuffs, chemicals, machinery, etc., brought the meeting to a close. It was held at the Hotel Charlotte. Entertainment was provided by the Hotel Charlotte orchestra, a Keith-Albee act from a local theatre, and the mixed quartet of the Charlotte Goodfellows Club. Paul F. Haddock acted as toastmaster, and W. H. Williard, National Aniline & Chemical Co., Charlotte, was in charge of the entertainment. The toastmaster called upon Marshall Dilling, past president of the association, for the invocation. C. O. Kuester, manager of the Charlotte Chamber of Commerce, welcomed the delegates, and F. Gordon Cobb, executive secretary and past president of the Southern Textile Association, responded. David Clark then introduced some of the prominent guests, among these being, A. B. McCarthy, president, American Aniline & Extract Co., Philadelphia; R. M. Levy, sales manager, Roessler & Hasslacher Chemical Co., New York; Dyer Moss, secretary, American Association of Textile Colorists & Chemists; R. W. Jaeger, research department, Armour & Co., Chicago; and W. M. McLaurine, secretary-treasurer, American Cotton Manufacturers Association, Charlotte, N. C.

The two speakers at the banquet were Charles E. Mullin, professor of dyeing and chemistry at Clemson College; and Harvey W. Moore, secretary-treasurer of the Brown Mfg. Co., Concord, N. C.

Professor Mullin discussed the relation of theory to practice, emphasizing that there is an importance for a coordination of these two factors, each being complementary to the other. He also pointed out the possibilities of value in the college man in applying theory in practical work in the mill.

Mr. Moore took the subject, "Loyalty and Cooperation with a View to Producing More Marketable Merchandise." He stressed the effect of human relationships in the quality of the goods produced, and upon its appearance to the ultimate consumer; emphasized the need for cooperation and vision on the part of the finisher; and concluded by pointing out the interlocking dependence and spirit of cooperation which should exist between all phases of the industry, including the finisher, manufacturer, machinery man, textile magazine, etc. After Mr. Moore's talk, some selections by the Goodfellows' Quartet and resolutions of appreciation, adopted by rising vote on motion of David Clark, adjourned the meeting.

Pipe Line Tracyfier.

Blaw-Knox Co., Pittsburgh, Pa., announce the development of a small purifier for use in several sizes of air, steam, or gas lines up to three-inch. The new device, known as the pipe line Tracyfier, embodies the same principles used in the original equipment. In saturated steam lines, it is pointed out, it is designed to remove all moisture from steam, to deliver standard specification steam, free from soluble and insoluble solids. It is made and sold by Andrews-Bradshaw Company, a division of Blaw-Knox Co.

Saco-Lowell Announces Consolidation.

Saco-Lowell Shops, Boston, Mass., have authorized the following announcement:

The directors of Saco-Lowell Shops, at a meeting held Wednesday, February 1st, voted to close that part of the company's property in Lowell, Mass., formerly known as The Lowell Machine Shop, and to consolidate operations in its three remaining plants. This move does not affect in any way the operation of the Kitson Machine Shop, also located in Lowell. The great bulk of the company's production is cotton machinery and very little of this is made in the plant to be closed. The consolidation, therefore, will cause no disturbance or interruption of the current production of cotton machinery, and in fact will strengthen the company's ability to handle its business to the best possible advantage.

The company has been operating four plants—The Kitson plant, also located in Lowell, manufacturing opening and picking machinery; the plant at Newton Upper Falls, Mass., producing cards and drawing; the plant at Biddeford, Maine, manufacturing spinning, roving and twisters; the Lowell plant, which is to be closed, producing a miscellaneous group of minor items in the company's line of cotton machinery, together with Bradford and French worsted and spun silk machinery. Closing the Lowell plant will not interfere in any way with the Company's production of its line of cotton machinery. Production of worsted machinery will be reduced and may be suspended pending the completion of the program of consolidation.

A considerable part of the machinery in the Lowell plant, comprising the best and most modern tools, will be transferred to the active plants, thus adding to the economy and efficiency of their operations, and insuring the maintenance of the company's well-known high standard of quality and precision in its products.

The calculations made by the management, based upon a very thorough survey of the company's plants and facilities, indicate clearly that large and permanent savings will result from this program of consolidation and that the company's ability to handle a large volume of business in an efficient and economical way will be greatly strengthened.

The company has a very strong current asset position today and is easily able to finance its proposed consolidation program without any strain on its cash resources, which are ample. It is confidently expected that operations during the first year following the completion of consolidation will reflect savings in excess of the cost of consolidation, and these savings will continue in even larger amounts in subsequent years with great advantage to the company's operating results. The closing of the Lowell plant will be carried out in a carefully planned and orderly manner, thus avoiding any disturbance in current operations and securing the best practicable utilization of the resources and personnel of the Lowell plant in the other plants of the company.

Bonn Leaves American Bemberg.

Announcement has been made of the resignation of L. H. Bonn, formerly assistant to Jack Strauss, vice-president of the American Bemberg Corporation. Announcement of Mr. Bonn's plans for the future will be made at an early date.

Divisional Discussion on Weaving

Plain and Fancy Weaving Problems Taken Up at Separate Sessions. The Multiple Loom System a Center of Interest.

A most profitable and valuable discussion on weaving was held by the Weaving Division of the Southern Textile Association at Clemson College, S. C., on Wednesday, February 22nd. The meeting was held at the school mainly in order to develop further contact between the men in the industry, and the State's textile school and with the talks of an introductory character made by President Sykes of Clemson, and Director Horace Willis of the textile department, and a visit to the textile school by the mill men, this relationship was strengthened materially to a mutual benefit.

The most interesting and lively phase of the discussion of the day centered around the multiple loom system, a number of men who have installed this method outlining their practices and discussing the results. Another interesting feature was the afternoon session, which was given over specifically to the discussion of fancy weaving problems. This is the first time this subject has been taken up separately by the division, and it is felt that the beginning last month at Clemson will eventually result in a thorough-going and active sub-division devoted to this phase of weaving.

The meeting was opened by W. A. Black, superintendent of the Beaumont Mfg. Co., Spartanburg, S. C., who presided as assistant chairman in the absence of General Chairman L. L. Brown. After the invocation by L. E. Wofford, of Inman, S. C., President Sykes and Director Willis spoke briefly. After these talks, Mr. Black entered into the practical discussion of plain weaving problems, based upon several questions in a questionnaire previously sent out to members, to which a few replies had been received.

"What is the best method of setting up a loom on two-shade work? Would you pick over the yarn in the front or back harness from the right-hand box? Why?" This was the first question submitted for discussion by Mr. Black.

Picking Over the Back Harness.

Referring to twelve answers received to this question, Mr. Black reported that out of this number, "ten state that they pick over the back harness and two of them over the front harness, so it seems that this would mean that the best practice is to pick over the yarn in the back harness. Some say that picking over the back gives a better fabric and others claim picking over the front harness does the same thing." He asked for discussion, requesting those talking to give their reasons for their practice.

"We are picking over the back harness for the reason that we think we make a better selvage, and not necessarily a better piece of goods except in the selvage," responded Carl R. Harris, assistant superintendent, Inman Mills, Inman, S. C. "This, however, is not one of the things we can say we have gone into very thoroughly, but we do feel that we make a better selvage by picking over the back."

J. N. Alexander, superintendent, Courtenay Mfg. Co., Newry, S. C., declared that, using a tape selvage, he picks over the back harness, because he believes he makes a better piece of goods by picking "with the tight shed down as the shuttle approaches the yarn on both ends. It holds the filling to an even place and prevents what we call 'reedy' appearance in the goods," he explained, "and coming from the left-hand end it strikes the tight cord first coming each way, and in doing that it holds the filling in its proper position. When we were shipping more goods to foreign countries we had more kick on what we call

W. A. Black, in Charge of Plain Weaving Discussion.

reedy goods, but we do not have so much of it now. But that is our contention—of course with the tape selvage we pick over the outside thread—it holds the yarn in its proper position and evenly divides the warp threads."

S. H. Bevill, overseer of weaving, Orr Cotton Mills, Anderson, S. C., was called upon and responded that while he has always picked over the yarn in the back harness, he attributes it wholly to the matter of custom and habit established in order to settle upon a standard and uniform method throughout the room.

"I like to pick from the right-hand side on a Draper loom, because the forward end of the shuttle is the one that has the most weight to it," said W. B. Williams, overseer of weaving, American Spinning Co., Greenville, S. C., "and because if you have the harness divided the back shed must be higher than the front, while in this way both of them are level, to the same height, and are going to the same depth. You also hold the shuttle down and get out of rattling in the boxes, and a bad parallel, whereas if you run the light end over the high harness you have trouble. So far as the cover on the cloth is concerned, I do not think it will make any difference, but to have the heavy end of the shuttle picking over the high

shed is the reason I would prefer to pick in that way."

In connection with the reference to tape selvages, Chairman Black brought out the point that with this motion, it is a separate proposition and therefore does not have any effect on the regular fabric.

The Life of a Shuttle.

The chairman next took up the second question, which read as follows: "What do you consider a fair amount of shuttles per 100 automatic looms per year on sheetings and drills, the loom making around 160 r.p.m.?" He read the following replies that had been submitted:

100 shuttles, or 1 shuttle per loom per year. (One reply.)

125 shuttles, or 1¼ shuttles per loom per year. (Two replies.)

65 shuttles, or 65/100 shuttle per loom per year. (One reply.)

100 shuttles, or 1.1 shuttles per loom per year. (One reply.)

"Of course," he brought out, "the kind of fabric, the speed of the loom, etc., all enter into the life of the shuttle. It seems that the majority average about one shuttle per loom."

It was requested that J. R. Shippey, who was reported to have "the best shuttle record in South Carolina" discuss this, but he had not arrived. W. W. Cobb, superintendent, Norris Cotton Mills, Cateechee, S. C., suggested that the chairman call on J. B. Mitchell, overseer of weaving, Belton Cotton Mills, Belton, S. C., for a discussion of the subject.

"We have been keeping an individual record of shuttles for the last seven years," responded Mr. Mitchell. "That is, each loom is numbered, and if we need a shuttle for any loom, the number of that loom is put down and the shuttle charged to it. When we began to keep that record we were getting about ten months' use to the shuttle, and since we have been keeping it it is much better, last year our average life was fifteen months. It would be surprising to most of you, if you would keep an individual shuttle account for each loom; you will find that a very small number of looms are using most of your shuttles."

Mr. Black asked how many present keep records of shuttles of this kind, and fifteen mills answered in the affirmative.

T. C. Drew, Jr., superintendent, Clifton Mfg. Co., Clifton, S. C., was called upon to discuss his record and practice at Clifton and Converse.

"We keep an individual shuttle book out at Clifton and Converse," he said, "and, running night and day, we find an average of about 1½ shuttles per loom per year. Before we began keeping this record, however, our shuttle consumption was quite high, and we have cut it down quite a bit. We also use tallow on our shuttles every other week, and we find that this lengthens the life of the shuttle, too."

"You will notice that Mr. Drew says he uses tallow," mentioned Mr. Black. "It is an evident fact that by a treatment of a shuttle in the proper way that you can prolong its life, and I wonder how many of us ever even look at a shuttle after it has been placed in the box."

"I would like to say that we reduced our shuttles 25 per cent by using tallow," added Mr. Drew. Responding to a query, Mr. Drew replied that he uses dogwood shuttles, and Mr. Mitchell also said he uses dogwood instead of persimmon shuttles.

"We keep a record of the individual looms," said W. P. Leister, superintendent, Victor-Monaghan Mill, Walhalla, S. C., "and we find about the same thing—that by keeping a record we reduce our consumption of shuttles. At the present time our shuttles give from fourteen to sixteen months. We used last year 746 shuttles in twelve months on 900 looms. We also use tallow on the shuttles."

"We use the tallow," added J. W. Morse, overseer of weaving at Walhalla, "and we also have the loom fixer make a careful inspection of the binders, pickers, and everything else, and we also have the second-hand inspect the loom. We do not leave it up to the loom-fixer entirely. But if he finds anything wrong, he reports it to the second-hand and he comes to me and we go and teach the loom-fixer the proper way to fix it.

"We use the finest tallow we can find, and rub a little on each side of the shuttle, and we find that preserves the shuttle, the binder and the reed. A whole lot of loom fixers are just careless about things, like leaving the reed loose at one end and both ends, sometimes. The thing to do is keep these reeds tight and in place."

Marshall C. Stone, general superintendent, Arkwright Mills and Enoree Mills, was called upon. "I cannot give you any definite information, because at Enoree we have very few looms on sheeting. Maybe Mr. Beecknell here can give you the figures from Arkwright. The average shuttle life at Enoree is about nine months on coarse drills. We keep an individual record at both mills."

C. H. Lockman, superintendent, Henrietta Mills, Caroleen, N. C., put the question with reference to shuttle consumption, "What percentage of these shuttles are worn out and what percentage are bursted, and how much changing do you do?"

"Well," responded O. E. Bishop, overseer of weaving, Clifton, S. C., "we do enough changing to keep eight drawing-in hands busy." Referring to the care of the shuttles, he brought out that he fixes them every other Saturday, tightening up all springs, leveling the bobbins, etc. He said he found this practice saves more in waste than it does in shuttles. "We keep a record of that and we find that we have cut down our waste caused by shuttles making unnecessary stops." Reverting back to Mr. Lockman's question, he said, "There are not over ten per cent of our shuttles that are broken. Most of them wear out." He also mentioned that he does not smear the tallow on the sides of the shuttle, but, after tightening the eye, puts the tallow in there.

In connection with smearing the sides of the shuttle with tallow, Mr. Williams asked "is there any trouble with the shuttles rebounding, and what adjustments are necessary in the shuttle box?"

"We tried putting the tallow on the back and front of the shuttle," said Mr. Bishop, "but we found that on starting up on Monday morning we had trouble with the shuttles bouncing, and that is the reason we stopped putting so much on. We put it in the eye and let it work out gradually."

"We have been using tallow for some time," said Carl R. Harris, "but we take our tallow and wrap it up and make kind of a bag and put it on during the week while we are running, and for that reason we have not had any trouble with bouncing shuttles."

"I use tallow," said J. L. Bobo, overseer of weaving, Anderson Cotton Mills, Anderson, S. C., "and I find too that by mixing it with Japan wax helps a lot toward holding the shuttle and preventing it from rebounding. We put it in the hole where the screw comes in and in the eye, about once a week. We mix it about half and half, tallow and wax."

"We tried at our place the same thing, and we find that the Japan wax and tallow mixed does not require so many adjustments after this has been applied," reported Mr. Black.

L. E. Wofford, night superintendent, Inman Mills, Inman, S. C., wanted to talk about that ten per cent breakage report of Mr. Bishop. He wanted to know whether ten per cent breakage was considered good or bad. However, before Mr. Bishop responded, C. P. Dill, overseer of weaving, Brandon Mills, reported that, "We keep a shuttle record and use tallow, and our shuttle average is around 100 per 100 looms per year. I am just like Mr. Mitchell, I was really surprised when we first began to keep this record to know how few of the looms were using the shuttles." Referring to Mr. Bishop's report of ten per cent breakage, he said, "I think this gentleman who is having ten per cent breakage is having a mighty, mighty good record. Just consider that ordinary filling runs out in about five minutes. My experience is that you do not have so very many to actually wear out. I have had some shuttles run for three and four years, but the bigger majority of ours break or burst. That is why I put on the record, to find out how many looms were doing it."

In explaining his figures, Mr. Bishop said, "I didn't mean to say that we only had ten per cent of our shuttles to break. I was talking about how many good shuttles we put in and had to take out in a week or two. There are more break than wear out. We run 1,020 looms, and have a standing order for 135 shuttles per month. Of these, 720 are Drapers and 320 Hopedale, and we get 100 shuttles for the Drapers and 35 for the Hopedale. Last month we used 104 shuttles, but then again we will be higher.' '

J. R. Shippey, overseer of weaving, Spartan Mills, Spartanburg, S. C., next discussed the subject, saying that "We have 2,568 looms, and I think 24 months is a good average shuttle life. Of course the number of the yarn has a good deal to do with it. I believe a good reed will help you more than anything else. We do not use tallow or anything else on our shuttles."

"There is one thing we have to take into consideration," Mr. Black pointed out, "and that is that a man weaving 64 x 64 certainly will not have as many shuttles burst and break as a man who is running 100 x 64 broadcloth or 80 x 80s. I think ten per cent of bursted shuttles is a fine record, and yet I believe it is possible on ordinary print cloths." He next took up the third question, which was,

Transferrer Fork Weaving Grooves in Quill.

"Are you troubled with the transferrer fork weaving a groove in the end of the filling bobbins, and if so, what is the remedy?" The chairman first reported the responses to the questionnaire. Out of twelve replying, he said four answered "Yes", and eight "No". "Some of you know," he explained, "that we have a good many quills or filling bobbins that wear right at the end, and thereby become useless, due to the fact that the yarn will not pull over that rough place caused by the fork improperly set. Are you troubled with that? In this day and time, with the high price of filling bobbins, especially in using the enameled bobbins, it makes it pretty expensive to have them worn off on the end. Do you have any trouble of that kind, and what are you doing to overcome it?"

"We are having that trouble, and have not been able to do a great deal to overcome it," responded W. M. Langley, superintendent, Abbeville Cotton Mills, Abbeville, S. C. "But I notice that the new transferrer fork has the shape of the fork changed, and I think that will have a great deal to do with helping it."

"We are having some trouble with that fork wearing out the quill," reported Mr. Morris, "and after we did all we could it looked like we still were bothered. But we are buying some of the new pattern forks and find them to be very satisfactory. Our quills, however, are very old."

"Are they enameled?", asked Mr. Black.

"No, sir," was the response.

"We find that the new improved fork that Draper is sending out has practically overcome this trouble," said R. B. Ramey, overseer of weaving, Woodside Cotton Mills, Greenville, S. C. "You take 45s filling made out of short cotton, and if the quill is not smooth you will have more trouble changing. The new fork is a great improvement over the old one about wearing out the quills."

"We have quite a little bit of trouble with that," reported W. W. Cobb, "but of course this fork business will eliminate it. But we cannot do that all at once, and I find that bobbins that are not treated with oil will have more effect on that. If you are buying your bobbins treated with linseed or some other oil—the plain, not the enameled—it will help. They will stand more abuse than bobbins that are not treated. I have both, and I find that the bobbins that are treated will stand quite a bit more abuse." He added that in his experience, the bobbins can be secured either treated or untreated, but if the treatment is not specifically requested, the manufacturer will not treat them as this requires an additional operation in their manufacture.

Another aid was suggested by C. W. Bishop, overseer of weaving, Saxon Mills, Spartanburg, S. C. "We changed the small end disc," he said. "The spring was bolted on, and we changed and took off the small battery and put on a large battery and got a disc with the spring behind, and I do not have any more trouble like that."

Using Warp Hands to Aid Loom Fixers.

The fourth question read by Mr. Black was, "If you are on sheetings and drills, do your loom fixers tie in their warps, and if not, how many looms do they keep in repair, and how many looms do your warp men take care of?"

A. F. Garrison, superintendent, Hartwell Mills, Hartwell, Ga., was the first to report. "Our loom fixers tie on their own warps," he said, "and we have 72 looms per section."

"How often do your warps run out?", was asked.

"They run about fourteen days," said Mr. Garrison. "We make sheetings, 3.75 to 4.25-yard."

"We have 40-inch looms," responded W. W. Becknell, superintendent, Arkwright Mills, Arkwright, S. C., when called on. "Our average is 60 looms to the section. We do not furnish warp hands. We are on 2.35, 2.75, 37-inch drills, and our warps run about eleven days."

S. T. Buchanan, superintendent, Piedmont Mfg. Co., Piedmont, S. C., was requested to give his practice. "Our men run from 60 to 76," he said. "We have two different mills where we run what we call three-yard and four-yard. In the four-yard mill we make anything from 4.00-yard to 6.00-yard, and the loom fixers have 76 looms, and in the three-yard mill we make from 2.50-yard to 3.75-yard, and these loom fixers have 60 looms. The warp in the four-yard mill is 21s, and in the three-yard, 13½s."

"For your information," said Mr. Black, "I will read the replies to the questionnaire. We have five men who say their loom fixers have 100 looms and do their own warping and taking out the patterns. We have one answer that says 60 looms to the section, one 86, one 88, one 90, and one 84.

"Is there anyone present who uses warp hands, and have the loom fixers only repair the looms? It has been asked why should a high-priced man spend his time tying in warps and taking out patterns when it can be done with cheaper help."

C. H. Lockman replied that, "at the present time my fixers tie in their own warps. I have had the other method, but I find it very unsatisfactory, for the simple reason that a warp hand will slap on a warp and leave it, and I consider tying in warps and taking out patterns one of the most important things about loom fixing."

"My fixers tie their own warps, and we have 88 Draper looms to the section," reported J. H. Burgess, overseer of weaving, Mollohon Mill, Kendall Mills, Inc., Newberry, S. C.

The Multiple Loom System.

The multiple system of weaving, by which the number of looms per weaver is increased, was next discussed, being introduced by the fifth question, "Do you have in effect what is known as the multiple loom system? If so, what do you gain by it?"

This discussion was most interesting. There were four or five men present who described their experiences, and a number of the other men showed keen interest by firing questions at these speakers. There was some amusement created at times when some of the questioners would submit inquiries which seemed to be designed to point out defects in the method. It is believed, however, that fundamentally all of the questions asked were "for information". The subject had never been brought up in a meeting, and while every one has been "hearing of" what is being done along this line, they immediately wanted to get first-hand information from those present who are using the method.

Social Circle Has It.

The chairman first asked W. L. Phillips, superintendent, Social Circle Cotton Mills, Social Circle, Ga., to discuss the subject. Mr. Phillips explained that he had had the system in operation only a few months, and that he would prefer to have some of the South Carolina men begin the discussion since he had secured his ideas from practices in that state.

"I will say this," declared Mr. Phillips. "When I first heard of the multiple loom system, I thought it was impossible to do what the reports I got said they were doing over here in South Carolina. The first thing I said was, 'It can't be done'. But I continued to hear about it, and one day I got in my car and made a trip through South Carolina, and went through some of your mills, and what I saw was astonishing.

"I went back home and told my overseers we were going to take a little vacation. We made three trips to South Carolina mills, and by the time we reached home the last time, we were all convinced that it could be done. I made the remark the other day that I have learned more in the last three months about a cotton mill than I ever knew before, and I am just finding out how little I really do know now.

"We are on wide sheetings, and our weavers have been running 10, 12 and 16 looms, with battery hands. We now have weavers running 20, 22 and 24 looms, with loom fixers looking after 86 and 90. We also have some 50-inch pillow tubing looms we are using the system on too. We use warp hands and battery fillers. When we put in the system we had 26 weavers. Now we have 16. We hope to cut it down to 12 weavers, on 386 looms.

"I would like to add this: You have got to do your weaving in your carding and spinning. I was trying to do it in the weave room. It has to be done upstairs, and it has taken us several weeks to realize that and begin to get our yarn where the weavers could run more looms."

And Inman, Too.

Carl R. Harris, Inman Mills, Inman, S. C., was next called upon. "I am frank to say that my weaving was in the same fix," he responded. "We studied over the matter and are still studying over it. It is absolutely essential that you weave in the carding and spinning in order to run the multiple system. We have found we had to go to our card room and spinning room and practically revolutionize things. We have not completed that yet, but it takes it in the carding and spinning, and at the same time the weaving cannot be neglected. The weave room must be kept in better shape to run the multiple system than it ever was before, but it takes good yarn to do it. Our weavers are running 76 looms on 40-inch prints."

W. W. Cobb asked if "you don't have to go back further than the carder and spinner; I believe you have to go back to the cotton patch."

Pacific Experience.

The Pacific Mills, at Lyman, S. C., were among the first in the South to begin the multiple system of machine operation, and W. F. Howard, the superintendent of the cotton department, was called upon for his experience.

"We have had this system in for four years, and we would not change back," he said. "Our fixers are fixing 91 wide looms—we have seven fixers on 610 looms. Several years ago a weaver had to put up all of the blame, but if the carder and spinner will card and spin it like it should be, the spinner can take care of it, and then the weaver will be able to take care of it."

"To show you that Mr. Howard does it upstairs," interrupted Mr. Phillips, "his spinners are running twenty-seven sides."

"I still stick to my contention," said Mr. Cobb. "You've got to go back to the cotton."

"We have from 48- to 100-inch looms," continued Mr. Howard, "the majority being 80-inch. On the 90-inch the weavers run 32 looms; on the 100-inch 28 looms, on 68x72, 21½s warp. We have been running it for four years."

Clifton Finds It Satisfactory.

"We have been on it for eight months with 520 looms," declared T. C. Drew, Jr., of Clifton, "and it has proven to be very satisfactory. Before we put in the multiple sys-

tem we gave the mill a thorough over-hauling and cleaning out, so to speak. We went to the carding and spinning and saw to it that our looms were in apple-pie order. We have weavers running 50 and 60 28-inch Draper looms. We did have them on 70 and 72 and got along pretty good, but we changed them this week to 60 and 56 looms, and think we will get better results.

"I want to add that we cut our cost on the weaving just about 50 points. The loom fixers have 104 looms to fix."

"Does anybody use the system on numbers coarser than 20s?", asked Marshall C. Stone, of Arkwright and Enoree.

"Where a weaver runs 76 looms, who reports the loom being out of fix?", inquired Mr. Alexander. "I want to know if the standard of pay is going to be raised all over the mill."

"Is anybody using it on looms with the filling feeler, and how many different numbers of filling are they using? Is anybody using it on 5s to 12s?"

Responding to the query as to who reports the looms out of fix, Mr. Howard replied that "the weaver does it". He continued that as to the rate of pay the weavers were making about the same, so that there was no complication involved as to other wages. He indicated that the weavers were apparently satisfied with the new system, because in the past four years, "we have had only two sets of looms to come open". Continuing he explained that it is

Based on End Breakage.

"It is not a question of how many looms a man can run, but it is how many ends he puts up in a given time. You take a loom that has two ends per hour to break, and a weaver can't run 76 looms. The way we got at it was we figured that there was a cause for every end breaking, and we tried to find out what it was. When we started out to work out a set of looms, we made a test —we are still making them all of the time, for that matter—and we found that 33 per cent of the stoppage was caused by knots, not bad knots but good knots. We worked around and changed knot tyers and got that down to seven per cent. We must first get the end breakage down."

Pacific Mills at Columbia.

One of the other pioneer mills in the South in this practice was the Columbia, S. C., division of the Pacific Mills, and Mr. Riddle, of these mills, was asked to tell of their experience. He said they have a total of 4,800 looms, and that weavers are running from 54 to 76 and 82 looms. "We have been getting by with it successfully," he said, adding that, like Mr. Howard, they had had only a few sets of looms to come open since the system was put into effect. Mr. Jewell, of Cherokee Falls, S. C., wanted to know how many looms a weaver can start up in an hour or a day under this new system.

Mr. Riddle explained that the assignment of looms is based on an average of 300 stops a day per weaver, as that permits him to keep the looms assigned going and gives him "15 and 20 minute periods in which we allow him to rest, but he can put up 300 ends successfully."

"I would like to ask Mr. Riddle how much the carding and spinning cost was increased," requested C. L. Chandler, superintendent, Gaffney Mfg. Co., Gaffney, S. C.

"It reduced that cost," declared Mr. Riddle. "The spinners were running 14 sides and now they are running 18, 20, and 22. We put a method in the spinning room similar to what we did in the weave room. In fact we went into the carding, spinning, spooling, slashing, etc., about a year before we put it in the weaving."

Reverting back to Mr. Riddle's statement that a weaver could put up 300 ends a day and have "15 and 20 minute periods" in which to rest, Mr. Leister wanted to know, "Who takes care of the looms while the weaver is resting?"

Mr. Howard explained that the assignment is simply based on that as an arbitrary figure, pointing out that "we do not make any definite period of time in which he rests, but we have made time studies and found that putting up that many ends, he does not work over 85 or 90 per cent of his time." He added further that it depends to a great extent upon the weaver, the width of the loom, the fabric, etc., but that he has found on 90-inch looms that a good weaver can put up at least 300 ends per day easily and then have from 15 to 20 per cent time throughout the day.

Production Increased, Seconds Reduced.

"How do you have your cloth taken off?", asked Mr. Bobo, "and do you use battery fillers?"

Mr. Riddle replied that it is necessary to use battery hands, and added that "we did increase our production and reduce our percentage of seconds when we put this method into effect. Before we changed, we had four men who took the cloth off and delivered it to the cloth room for weighing. These same four men take the cloth off of the looms, so many a day—we strip them once a week and pay no attention to the cut marks—they carry it to the cloth room and have it weighed. We have not increased our cost whatever in taking the cloth off of the loom."

"How many bobbins can a battery filler put in in an hour?", asked Mr. Stone.

Mr. Howard replied "11 per minute", and Mr. Riddle said his tests on 41s showed 8½ per minute.

"Do you pay by the hank clock, and what kind of harness do you use?", asked Mr. Bobo.

"We pay by the pick, using pick counters, and we have cotton harness," replied Mr. Riddle.

"These gentlemen all say you have to go back to the card room and spinning room to begin your improvement," observed Mr. Lockman. "If it is good for the multiple system, why isn't it good for the old system? Why couldn't we go back to the carding and spinning room, and make it perfect and cut the cost some?"

What They Do at Pelzer.

L. P. Duncan, assistant superintendent, Pelzer Mfg. Co., Pelzer, S. C., was asked at this point to tell of his experience with the multiple system. He said they had been operating on it for about 18 months, and that "we started in the card room and then went on through to the weaving, every department in the mill was put on the multiple system. Our spinners run 30 sides on 30s. In apportioning our looms to the weaver it will be very closely with what Mr. Howard is doing. We find that in going into the multiple loom system, it was absolutely necessary that the yarn be properly made, and that the looms be properly fixed. In trying to determine the number of looms a weaver could handle efficiently, we found a great part of the trouble was not altogether with the yarn, but with the loom. On the old system we had weavers running 14 and 16 looms, and looking after everything. On the

multiple system our weavers do nothing but weave, and they are scheduled to make cycles front and back in proportion to the number of ends they have to put up per hour in order to keep the looms going. Frankly, it takes a lot of figuring to get that time established in proportion to the number of ends broken.

"Going through the system in carding and spinning—and it made a tremendous difference in the stops in weaving—we tried to determine why the ends came down, and when we did that we worked right back to the carding and spinning room. If we had perfect yarn going to the looms our troubles would be reduced, but I never have seen a perfect yarn.

"We now have weavers on 90-inch looms running 36 looms, 25s warp and 30s filling, up to 100x64, 30s warp. We have a great many styles, and our number of looms per weaver varies greatly. We cannot always block them off to where they are running all looms on one construction."

"It Won't Be Done."

"A gentleman just asked why couldn't we improve the carding and spinning under the old system," declared Mr. Phillips. "It can be done, but it won't. We won't do it. When I went into it it made me shut half of my spinning. I have some old 1900 Lowell frames and some 1925 Saco-Lowell frames right side by side. We found that our old spinning was breaking seven pounds weaker than the new, and we had 30 per cent more loom stoppages on yarn made on the old frames. We shut down the old frames and ran the new night and day. We went to the spoolers and warpers and threw them out and put in a new and different system. We cut our loom stoppage down from 2 per loom per hour to 1.3. And we thought 2 was good, but when we went into the multiple system we found we had to cut down the loom stops. We hope to reduce it to ¾ stop per loom per hour."

Mr. McAbee of Abbeville explained a question he had asked previously, as to the number of different styles being run, stating that he has sometimes 19 numbers of filling on 312 looms. Mr. Duncan said his wasn't quite that bad, but that he does have ten different numbers on 700, and that it is impossible to block off the looms to have them grouped according to the number of the filling. He gives the filling to the battery hands on trucks that carry small boxes of yarn, and the battery hand has stations between which he puts up the different numbers of filling. "One thing that occurs to me that I have not tried," he added, "and that is to have the filling box attached to the loom, with the proper number of filling in it, and then there would be no mixed filling. The only difference would be in reducing the number of looms to where she could take care of the coarser numbers."

Good Cotton, Carding and Spinning Necessary.

Mr. Wofford expressed the opinion that it is necessary to go back beyond the spinning room to operate the multiple weaving system. He said he had seen one woman running 76 looms and getting as much rest as he does. "It is not all done in the spinning, though," he said. "In walking over the weave room I do see that the spinning plays an important part, but one thing I think is that the weavers have learned to weave behind the loom as well as in front, if the weaver walks behind the looms he is going to have better weaving than if he stays in the alley. You have got to have extra good cotton, and good spinning and carding, and tremendously good weaving, and you have got to talk this system to your help, too."

"I went down to Pelzer," said W. W. Cobb. "I was thinking about this system, and I had quite a long talk with Mr. Murphy, and he told me that a man better not go in to it if he didn't have a grader to grade his cotton and have it uniform in staple, grade and character."

"Do you think these different improvements could be made in all mills?", asked the chairman.

"I am like Mr. Phillips," replied Mr. Cobb. "It won't be done."

Mr. Alexander asked how much the manufacturing cost was reduced, and Mr. Howard replied that it reduced the cost in every department. Someone else asked if the seconds were reduced. Mr. Harris said that "I can say frankly that, while Mr. Garner, our weaver, may not agree right now, that we reduced our seconds and increased our production." Someone asked whether the seconds were reduced in the carding or the weaving, and Mr. Harris replied that while they showed up in the weave room, the responsibility was in large part further back. "We went to the spinning room and threw out spindles and bobbins on warp, and we are now doing it on filling, trying to help the weave room. Of course there are a number of other things we do in carding and spinning outside of that, but it has got to come from all the way through—everything being done to aid the weaving."

Is It Practical in the Small Mill?

The chairman said, "I can understand how this system might be practical in a weave room of more than 2,000 looms, but is it practical in a small room of say 300, 400, or 500 looms?"

"We have it on 520 looms," replied Mr. Drew.

"We have it on 386," added Mr. Phillips.

"In a big mill, do you need to have an extra crew of overhaulers?", asked Mr. Alexander.

"You may need them to get it started, and in getting things in shape, but you will not need to keep them," was the opinion expressed by Mr. Drew.

"At our mill each section man is held responsible for the upkeep of his section," replied Mr. Riddle, adding that they did not increase their force in putting in this new system.

"Is there any especial attention necessary in regard to the temperature and humidity?", inquired Mr. Leister.

Mr. Harris added that they installed a complete new humidifying equipment, but this was not done by reason of the multiple system. Mr. Howard says he has the Carrier system and checks the reading every two hours.

L. P. Batson said he had been requested to ask if anyone was using the system on shade cloth; if so, how many looms each fixer and weaver looked after, and how much the cost was reduced. Mr. Duncan replied that he runs shade cloths, 64 x 60, with the same organization as prints, and that the weavers run 52 looms and the fixer takes care of 80 looms.

With regard to Mr. Leister's question on humidity, Mr. Duncan continued that "we have to give it special attention, and everything else special attention. In fact there is not a single item that I can think of that you can pass up and leave the same as you did under the old system."

"Do you change from the fork and feeler or just from the feeler?", asked Mr. McAbee.

"We have been changing from the fork and feeler, but

we are going back to the feeler alone," answered Mr. Duncan.

Mr. Bobo asked the multiple loom men as to their method of paying battery hands. He said he had been paying them by the piece, and wanted to know if there was a better method.

Mr. Riddle, Mr. Drew, and a gentleman from the Woodside mills all indicated that they pay by the battery. Mr. Phillips added that "if you will eliminate the filling boxes and give the battery hand a truck you will find he can fill more batteries."

Percentages of Size.

The final question of the plain goods discussion asked, "Does it pay to size heavy, or attempt to load sheeting or drill warps? If so, what do you consider a reasonable percentage?" Of the answers received, Mr. Black said two indicated they apply 7 per cent; one 8 per cent; and two ten per cent; five answered, "It doesn't pay to attempt to load these goods."

Mr. Buchanan responded, "We are on coarse goods, and try to put in size to the amount of 8 per cent and also leave moisture at 8 per cent."

Smith Crow, superintendent, Drayton Mills, Spartanburg, S. C., was called upon. He explained that he runs very fine goods, with different twists ranging from soft twist to voile and crepe twists, and that his percentage of size runs from 4¾ to 5½ per cent.

The chairman called upon W. F. Davis, superintendent, Brandon Mills, Greenville, S. C., who said, "My weaver is here and he can tell you more about that than I can."

C. P. Dill, overseer of weaving at Brandon, replied that "I think the size should be varied according to what you are making. There are some goods you might want to size more than others." He indicated that he has a method for checking up on the size from time to time, and that on bag goods, 80s x 80s, etc., 90 x 60, and 100 x 64, he applies from 9 to 11 per cent.

This concluded the discussion. Before adjournment for luncheon, the men witnessed the showing of an interesting moving picture on rayon, prepared by The Viscose Company, showing the various stages involved in manufacture of Viscose yarn. Luncheon was served in the mess hall of the college.

Afternoon Discussion on Fancy Weaving.

Following the luncheon, there was held an afternoon session at which discussion was conducted on a questionnaire covering various features of fancy goods weaving. It was unfortunate that E. A. Franks, superintendent, Duncan Mills, Greenville, S. C., who was designated to lead this meeting because of his extended experience in this field, was absent. Carl R. Harris, who is chairman of the spinning division, conducted this feature of the meeting, and, while he utilized his experience as a discussion leader, he admitted a lack of experience in the field of fancy weaving.

This was the first attempt made by the Association to discuss fancy weaving separately, and the attendance was comparatively small. It is felt, however, that a long step was made, and that later meetings of this group will develop one further active division in the discussion work.

Mr. Harris was given the questions for discussion, and the answers which had been submitted in response to the questionnaire. The first question propounded was, "What is the best method to make up warps that have different numbers of yarns?" J. K. Poole, assistant superintendent, Stonecutter Mills, Spindale, N. C., was called upon to discuss this.

Using One or Two Beams.

"My experience has been if the weave is of such a nature that you can put it on one beam it is always best to do that," responded Mr. Poole. "Sometimes you cannot do that because the nature of the weave is such that the construction is too difficult, and you cannot run it on one beam on account of the tension."

Smith Crow, superintendent, Drayton Mills, Spartanburg, S. C., was asked to tell of a construction he had mentioned to the chairman. He said he has a weave that is composed of two different yarns in the warp, the ground being 50s with a 60s/2 yarn in it also, the two-ply weaving a satin stripe. He is running this from one beam, he said.

"That is a case of what I was talking about," said Mr. Poole, "that 60s/2 could be put on another beam, but that would make one more beam to fool with." A member brought out that sometimes goods contain a heavy cord, and Mr. Poole explained that he takes care of that in the slashing, by "sinking" the stripe on the slasher.

Carl R. Harris, Who Conducted the Fancy Weaving Discussion.

In running this kind of work, J. F. Blackman, overseer of weaving, Watts Mills, Laurens, S. C., pointed out that "you must be a good judge of things. I think you must determine the amount of size for the different numbers of yarn. I believe one beam will give you a better weave than by putting it on two beams, but you must be a good judge. We put all of our handkerchief goods on one beam, but we do not size the cords. There are a lot of things you must take into consideration."

"Do you run the cords under the squeeze roll?", asked Mr. Crow.

"No," replied Mr. Blackman, "they are run over the size box without any size."

"One Beam" Method Preferred.

"One thing in favor of putting the yarns on one beam is that it gives a much better finishing result," he continued, "because in the other method your top beam is under more tension than the bottom beam and it will run tight. We have had trouble with cords breaking in the

finishing; on the other hand, if the cords are woven in loosely, when it gets to the finishing they will kink."

The chairman read the following replies to the question:

"It is best to run one beam with the proper distribution in the slasher comb." "All owing to the kind of weave." One man said "Two beams." "Where on 20-harness dobbies, with different counts, I prefer two beams." "Put different numbers on different beams." "Have different beams for each number of yarn."

Explaining his method for handling the yarn on the slasher, Mr. Crow explained, on his warp where 50s is being run with 60s/2, "we use one dent for the 50s and then take the space of two dents for the 60s/2. That would be as near to it as we could possibly get; that would bring us much nearer together. Then too, you must take into consideration that the 30s (or 60s/2) will not contract with the filling like the 50s will, so that by making an equalization of the 50s and 60s/2 that kind of a weave will go all right. Of course the weave ought to be taken into consideration always."

Mr. Poole explained that he too does not make the distribution exactly in proportion, but slightly less than proportionately, running the coarser yarns in this manner because the lighter yarns will not take up the filling by reason of being smaller.

The chairman then asked for reasons for preferring each method, and read the following reasons given for the one-beam method: "One beam is always best if the construction is the same in the weave; there is less cost." "Because you get best results." "Less slashing cost, easier to put on, better tension and more regular width." J. E. Garvin, overseer of cloth room, Judson Mills, Greenville, S. C., added:

"By using two beams, very often the top beam will run out slower than the bottom beam. If that could be regulated by measuring devices it would be better. This trouble sometimes necessitates two beams which means two operations resulting in an additional cost."

"As I see it, there is every argument against two beams," declared Mr. Poole.

The chairman then read the replies of the proponents of the two-beam method: "Gives control of tension on different numbers on account of different sizes of yarns." "When the top is radically different it should be run on another beam." "Better running work by getting the right tension."

"Can you cover a fabric with two or more beams?", was the next question submitted.

"I think you could if it is possible to get the same tension on both of them," responded Mr. Poole. "That you might be able to do that is possible, but highly improbable."

"Not as good as with one beam," said one reply read by the chairman, and this seemed to be the consensus of the other replies.

Shiners in Rayon Fabric.

"What are shiners in silk and rayon goods?", was the next question. When the chairman asked for replies, Mr. Crow, said "Tight silk", and Mr. Blackman added, "Loose silk". "Most of the time it is tight silk", said R. M. Hughes, overseer weaving, Judson Mills, Greenville.

"I think I answered that pretty fully in my reply to the questionnaire," said Mr. Poole, "when I said an unnatural pick or end, whether it be too tight or too slack."

"When silk is damp or wet it will expand," brought out Mr. Blackman, "and when it is carried into the weave room on a bobbin wet it will expand when the tension is put on that yarn as it goes into the cloth, and it cannot get back because of the tension. If the silk is dry so that the humidity will not affect it, this is the ideal way to handle it. It is hard to make a shiner with dry silk that has been treated properly so that moisture cannot get to it."

Mr. Harris read the definitions submitted: "Stretched or tight pick on loom, or silk that is stretched in processing." "A conspicuous thread or threads." "A kinky filling or a tight pick." "Variation in tension in manufacturing. That comes from several causes—tension too tight in winding, hanging up on skeins in re-winding, etc." "Generally caused by the silk absorbing moisture, also tight pick and loose pick, or bad rayon."

Stretch is One Cause.

Mr. Harris next asked for suggestions as to remedies for shiners. "Assuming the silk comes to the weave room in good condition," replied Mr. Blackman, "the first thing to consider is the conditioning of the silk. It is generally done by oiling or spraying."

"Stretch needs to be eliminated in rayon in every process," declared Mr. Crow. "A great many shiners are made before they ever get to the loom." Mr. Poole substantiated this, adding that he can assign shiners to no one particular source, but "when I get in trouble I do not confine my inquiry and investigation to the weave room, but go into every possible phase. On my winders I use weights all the way from 'nothing' to one pound. We used to use fur to line the shuttles but with our shuttles we use wool in the eye." Mr. Poole added that at the present time he uses a flannel or clearer cloth to line his shuttles because frequently he changes from rayon to cotton in the same loom, and while a different type of bobbin is used, he employs the same shuttle, and must have it equipped for handling both kinds of work.

An inquiry from Mr. Harris at this point brought out the fact that in tensioning rayon in the shuttle, the tension is run all of the way back, whereas in cotton weaving the tension is applied only for the purpose of breaking the balloon in the yarn.

Improper Tension is Another.

As a further suggestion for preventing shiners, Mr. Garvin brought out that "you should see that the shuttle is boxed properly and have the proper tension on the shuttle in the box. If it is too tight that may have some effect on it. You should also work toward the elimination so far as possible of all knots; also the proper building of the bobbin is important."

"The oiling of the rayon will have a lot to do with it, too," declared A. C. McKenna, associate professor of weaving and designing, at Clemson College. In this connection, Mr. Blackman explained his method of conditioning. "We soak the rayon in oil and then extract it for about forty minutes, leaving about ten per cent oil in the rayon."

"We spray it with a patented paint spray," declared Mr. Poole. Mr. Garvin indicated the use of neatsfoot oil at Judson.

Mr. Harris here read the answers to the questionnaire as to means of preventing shiners: "Eliminate all stretch in every process in handling during manufacturing, preparatory processes and on looms." "Uniform tension on

ends in all processes through which the yarn passes, as well as at the loom." "Have tension right in shuttle, harness timed properly, not too much power on the loom." "Straight from the first time you touch it until the last time always handle it carefully." "Just have everybody trained to watch about defects." "Conditioning of silk, different tensions in shuttle, broken filaments in silk and rayon, irregular tensions are to be noticed, less tension in the shuttle."

"What type of bobbin is being used on rayon?", asked Mr. McKenna. Mr. Poole replied that he uses a cone-shaped, shellacked bobbin. Mr. Blackman reported a cone butt, black enameled bobbin, with a barrel larger than that used for cotton. Mr. Crow also uses the cone-butt shellacked bobbin.

"Sloughing Off" on Bobbin.

Mr. Poole asked whether anyone had tried a bobbin with the rings larger nearer the smaller end of the bobbin. "I have tried it on certain samples running fine denier," replied Mr. Blackman, "and it is very satisfactory; better than the other on the finer deniers."

"Does anybody have any trouble with rayon 'sloughing off' of the bobbin?", inquired Mr. Poole. "If so, what do you do about it?"

"I don't know what all we do try," answered Mr. Crow. "The build of the bobbin is the most important thing."

"The condition of the silk has something to do with this, too," added Mr. Blackman.

Mr. Poole was asked whether he uses the seven or the five wind traverse in building his bobbin; that is, five or seven strokes across the traverse each time. He replied that he uses the seven-wind, but that he changes this frequently as he has trouble from time to time.

J. W. Stribling, Atlanta agent of the Universal Winding Co., was asked for an opinion on this, and he pointed out that "the five-wind will help that 'sloughing off'. It binds the rayon better on the package, but of course you cut the production of the machine, because you cannot run the five-wind as fast as the seven wind, since the speed of the winder is governed by the speed of the traverse."

Robert K. Eaton, professor of weaving at Clemson, pointed out that a recent speaker at the school, discussing rayon manufacture, had demonstrated that even the rayon manufacturers have their difficulties in keeping the yarn on the cones unless it is properly conditioned.

In response to a question as to how many looms they have on rayon, Mr. Hughes of Judson replied, "Three hundred," and G. V. Hanna, overseer of weaving, Mayflower Mill, Cramerton, N. C., answered, "About two hundred." The question then was asked how many were running rayon on automatic looms. Mr. Hanna replied that he has six looms, equipped with the new type of Crompton & Knowles feeler on their looms. As to whether it is practical or not to run rayon on automatic looms, Mr Hughes said it is entirely so.

Streaks in Rayon Warp.

Mr. Harris asked the next question from the list, "Causes of streaks in warp of rayon fabrics." It seemed to be the consensus of opinion that one of the major causes of this was "Making up the warp out of two different batches of rayon; of the same grade and size, but made at different times."

The streaks are especially noticeable, according to Mr. Crow, "where the fabric is to be finished and dyed a solid color."

"If the rayon is natural color, the warp streaks could be caused by uneven denierage or by abuse of the rayon in processing; if dyed, by uneven dyeing," was another answer read by Mr. Harris.

"The reed may cause them, as well as rayon that is improperly 'sized'," was another suggestion.

"How to remedy them?" was next asked.

"By using all of one batch before beginning on another," was one suggestion. "Size the rayon for denier", was another. "Examine the processes, and dyeing operations carefully. Also watch for the different defects in the thread and also be careful in the handling of the rayon and do not reed so deep."

Condensing Harness on Dobby Weaves.

"Is it practical to condense the number of harness on dobby weaves?", was the final question submitted by Mr. Harris. There was a brief discussion on this, it being generally agreed that this depends upon the conditions. In other words, there are some weaves which could be woven on say, eight harness, where it is more practical to use say twelve, in order to secure an even, straight draw, and prevent difficulty in the harness hanging when pulled up, etc. In other words, the men present felt that they would not be willing to sacrifice a straight draw for the sake of reducing the number of harnesses; nor risk straining the head of the loom for the same reason, so that, as stated, it is a relative matter which must be worked out in each case. Mr. Hanna did express the opinion, on the other hand, that "the less you can use the better, because you keep the tension tighter for the shuttle. The more harness you have the more tendency you will have for slackness. The closer you get them the less dropped threads and skips you will have on heavy weaving, plain or fancy."

Added to these opinions were the responses read by the chairman, among these being one that in some cases the sley of yarn is so heavy that it is better to distribute it on more harness to save breakage.

Mr. Hanna submitted a question as to a trouble he is having. He said he has a chambray running on automatic Crompton & Knowles looms, four-box, and that he has difficulty with the filling jerking in from the magazine end. He said when the loom changes filling it jerks the loose end back in and puts in a double pick, and that he has been unable to stop it. He said he uses cotton yarn that has been bleached, in response to a suggestion from Mr. McKenna that the yarn be steamed or conditioned before weaving. He said he uses two shuttles, and the weave is 90x76. Mr. Poole said he once had that difficulty on a rather heavy construction, but found that the filling was breaking when transferring, when he thought it was being jerked back in.

This discussion concluded the afternoon session, and the meeting was adjourned. Announcement was made at the meeting that the spinning division will hold its next discussion meeting at Lake Lure, N. C., on Wednesday, May 16th. (This has been changed to May 23rd.)

Fuld & Hatch Knitting Co., Albany, N. Y., is planning the removal of its plant to Cohoes to concentrate its manufacturing activities. The firm already operates two mills in Cohoes.

Parallel Tubes and Cones

Building a Quality Package—Careful Attention to Winding Details and Absolute Cleanliness of Equipment Two Important Factors

By R. A. SONIAMAN.

PART TWO.

As in all processes and operations in the textile field, faulty work of some kind is an inevitable result of circumstances, peculiar or characteristic, of the processes or operations, so too, the winding of tubes is no exception.

Foremost, perhaps, is that of soiled cheeses. Careless workers, thoughtless oilers, and dirty, untidy, machines are main contributors to this fault, while overhead bearings, unclean floors, dirty containers, are good secondary causes or sources. Nothing but an energetic initial campaign, followed up by a regular, systematic and periodic checking up will bring this annoying defect down to the negligible point.

Bulging, unsightly packages are another common fault, and require constant care and attention to overcome. Bulging may come from several causes, but it is usually due to soft building of the initial part of the cheese, with a gradual tightening up of the tension which has a tendency to squeeze the soft center part outwards, giving it the displeasing appearance mentioned.

Ridges are caused by the end or ends getting out of the guide, and are particularly obnoxious when multiple winding is done, since it sometimes happens that one or more ends may be on the top of the ridge and the other end or ends at the bottom. In this case, snarls and corkscrews are bound to appear in the twisted product.

Occasionally, one finds that on certain winders there is a tendency for the parallel tube to assume a cone-shaped appearance. Grasping the larger end of the pear shaped package will disclose the fact that it is soft and spongy, in contradistinction to the smaller end which is of firmer texture. This defect is due to the holder that carries the core not being in proper contact or alignment with the drum throughout its whole length. Adjustment is necessary to build the cheese properly.

Snarls are another undesirable form of faulty product and are usually due to the winder operative failing to pull the end or ends taut when piecing a breakage, or replenishing an empty skein or bobbin or cop. It is a particularly glaring fault in multiwinding since it causes a corkscrew appearance in addition to the snarl if the product is twisted.

Once in a while, rare perhaps, but it does occur, especially where multiwinding is done, the guide fails to function correctly and it carries along only one of its several component ends. The other end or ends are accordingly disposed of in only a small portion of the length of the package, making the latter look like the sketch, Fig. 1. Obviously, the yarn on the package will have to be made into waste, as it can never run off properly in the subsequent process.

Cobwebbing of one end of a package usually means re-running of the cheese since it does not lend itself readily to some of the after operations, usually being altogether impossible in twisting or in warping when in the latter processes the cheeses revolve as they empty. The cause of cobwebbing is usually in the guide or holder which carries or permits the yarn to be carried too far to the end and then over it.

A in Fig. 2 is normal; *B* is cobwebbed.

Very annoying is the fault wherein two different counts or cottons are run up on a parallel package. Loss of time and material are inevitable concomitants of this trouble. This matter of mixed counts or cotton brings to mind the circumstance of mixed cheese. A most annoying thing for the customer!

He has ordered such and such a count and expects that he will receive it. And lo! he finds that where he thought

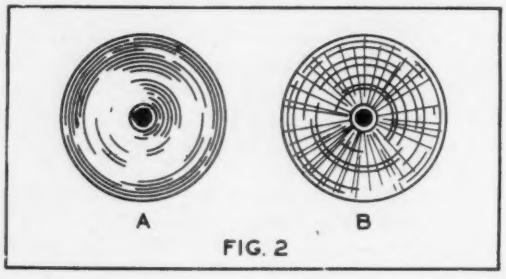


FIG. 2

he was working on 20s he is dealing with an odd package of 15s. Then follows a period of anxiety on his part as to how far his product is affected with the mixture and he spends a considerable portion of his time and his employees' time looking into the matter.

After which, of course, he sends his complaint along to the firm of whom he purchased the material. And by this time all parties concerned have delved into the matter and straightened it out as best it can be straightened out, a con-

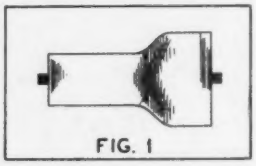


FIG. 1

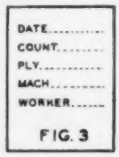


FIG. 3

siderable economic loss has been sustained, a customer may have been lost, the mill's profits on the shipment may be nil, and an otherwise desirable worker or workers, as the case may be, may have to be discharged. It behooves a mill, therefore, to take the proper steps to prevent mixtures, whatever their nature may be.

By the time that yarn has reached the winding or spooling machine, it has accumulated a considerable manufacturing expense, whether the firm doing the winding has done all of the manufacturing up to the winding, or wheth-

er they purchased the material from a yarn mill.

If now, an excess of waste is made from whatsoever cause; machine, worker, packing, storage, and so on, a cut is immediately made into the profits. For the reason, then, that waste should be held at a minimum, a tentative standard should be evolved from tests which prove conclusively that the standard arrived at is the minimum humanly possible at the present moment. Of course, it must be clearly understood by all that every endeavor must be made to bring the waste to even a lower figure than that set for the present.

This matter of waste reduction will be greatly accelerated by close and daily attention to the fixing or unraveling of packages that are damaged, soiled, or otherwise defective. A careless, nervous, or untrained person can make pounds of waste from good material by the simple process of cutting up the package while endeavoring to repair it. This spoiling of good material may happen at any process where the cheeses are used or made; and it certainly is worth the while of any operating executive to look into the matter.

The building of a good cheese or package is of utmost concern and interest to all who wind parallel tubes. Well trained workers take a pride in a well built package and the firm likes to have its customers speak well of the appearance of the cheeses. Firms which sell to the trade are especially keen in the matter, or should be, because other things equal, the neater package will be given the preference.

But to attain a good looking package under the various circumstances that affect the winding is often a problem, A good cheese will be made from a certain count and ply, but a very indifferent make-up may follow from a different count and ply. Experimentation must then be resorted to, traverse and drum speeds changed, guides looked over, and changed, if necessary, tensions must be gone into to see if they are affecting the build, and even the size of the empty tube or core on which the package is built may have to be altered.

Once, however, the right combination of factors has been reached, the data thereof should be made a part of the firms' standard manufacturing details and filed for future use.

Right handling of the cheese has no small bearing on the profits of the concern. Careless manipulation by the workers will spoil the good effect that might otherwise prevail from a well made package. Having the cheeses right side to in containers will be of considerable help at the next process; whereas indiscriminate dumping of the cheeses will create a bad impression, to say nothing of soiled yarn and waste when the packages are damaged from such rough handling.

Since it is essential to trace machine and worker when a complaint arises, it is a good practice to have small gummed labels pasted at some part of the core, which contain date wound, number of yarn, number of ply, number of machine and number of worker, as in Fig. 3. The very fact that such a system is in vogue is in itself often a sufficient deterrent of faulty work which might otherwise be made by careless workers when the latter feel quite certain that the fault cannot of a certainty be traced back to them.

After the cheeses are wound and previous to transportation to the next process, or to the customer, it would be well to inspect the tubes. This inspection need not be so elaborate that it includes looking over every cheese which would obviously entail considerable expense. In fact, the matter of inspection and its extent can best be solved by each firm itself. But certainly there should be a systematic and daily inspection of some of the packages.

Obviously, if a firm is the recipient of daily complaints from customers, with the possible loss or reduction in business, it would be advisable to institute an immediate critical inspection campaign, even though considerable expense is temporarily attached to such a procedure. The campaign should be vigorously carried on until the defects complained of have been brought down to a negligible number.

The parallel package is an ideal one for inspection since its contents can be viewed at both ends and over the circumference. A critical examination, therefore, of a certain quantity, say 20 cheeses, should disclose pretty accurately the percentage of, and type of, defects, in any particular lot or batch of tubes. Slugs, bunches, abnormal sized knots, soft places, bad twist, mixed yarns or cottons, are all readily disclosed by even a casual observation, and steps can be initiated to eliminate or reduce them to a minimum.

Sometimes it is advisable to go even deeper into the matter of defects or bad places in the packages, and a specific number of tubes from each lot to be examined can be sent to the dissection or testing laboratory of the plant; or, if there is no such department in the concern, it is easy to blackboard a certain quantity and then check up on the defects.

Each concern must, of course, decide how far they can afford to go into the matter of dissection for faulty work, because it costs money to do this sort of thing at the start. But if the business of the customers is worth having, it surely is worth going to some expense to work out a plan for bringing defects to a passable stage.

In any scheme of inspection, it will be found that some of the cheeses or tubes will be rejected by the inspectors, not for defective work but for defective building. Bad looking cheeses that detract from the general standard of proper build. These are re-run if the cheeses are for the trade, and naturally, the winding cost is practically doubled on them; therefore, it pays to get them wound properly the first time, and thus save the added cost.

After winding, the cheeses are packed in containers for subsequent use. If for the trade, the packages are often wrapped individually in paper, and then packed in cartons or cases. In the event of wrapping and casing, the possibility of errors in getting right counts in the containers always arises where a firm winds various counts for shipment. There is here a fertile field for the conscientious executive to so lay out the packing and shipping section that such mistakes are reduced to the point of negligibility.

From the foregoing discussion it will have been seen that simple as the winding of parallel tubes and cones appears, and common as the process is in every locality of our country, there are any number of opportunities for an alert and energetic firm to build a good cheese or cone, of a superior quality, which starting at the winding, will decrease the manufacturing cost, and reaching the customer will satisfy him, and actuate him to send along those most pleasing of business communications—repeat orders.

CURRENT TOPICS

A Mighty Row is On.

The row about the Interstate Commerce Commission's alleged new theory of rate-making goes on and promises to become epochal. The central feature of it at present is the Lake Cargo Coal case wherein the commission apparently assumed the right to act as arbiter over competitive strife between sectional groups of producers. This strife was over markets for coal shipped into the Northwest via the Lakes. The commission, in 1927, ordered railroads moving bituminous coal from Pennsylvania and Ohio mines to reduce rates 20 cents a ton on coal shipped from those mines to Lake Erie ports. Roads moving coal from mines further South to those ports volunteered to make a similar reduction but were estopped by the commission. The differential, which already was in their favor, is thus increased for the Northern group of producers, the consumers of the coal deriving no benefit. In 1925 the commission refused to increase the differential. Two members of the body changed sides when the case was voted on in 1927. The name of one of these was sent to the Senate, when Congress met, for reappointment. His confirmation was opposed, bitterly, by Senators representing States whose mines were ruled against adversely. The commission is accused, by those and other Senators, of "usurping" powers that would make it the most powerful governmental body ever known.

Powers of such import were exercised by the commission in the coal case, and more decisively in some other cases which the accusing Senators studiously ignored. That it was a "usurpation" is questionable. It was more of a natural evolution.

Congress long ago empowered the commission to pass on and fix maximum rates. In 1920 the Esch-Cummins Act empowered it to fix minimum rates, too. The rules, evolved through years of experimentation, court decisions and specific legislation, governing this were (1) Rates should be just and reasonable, (2) non-discriminatory, and (3) sufficient to insure the maintenance of adequate transportation service.

No formulas for exactly determining any of those things have been developed—and apparently are beyond development. So a lot of discretion necessarily was possessed by the commission. In the absence of sound formulas for applying them, the old rules have never been established on precise bases.

Then, in 1925, Congress passed the Hoch-Smith resolution. This was intended patently as a mere gesture to agriculture. But the effect of it was to add a new rule to the process of rate-making. This was that rates should comprehend "conditions," particularly of the "depressed" kind and especially as to agricultural products. Some members of Congress say that the resolution meant nothing; the Interstate Commerce Commission has construed it as meaning a great deal. Evidently the commission holds that it is a warrant for that body to act so far as it may within constitutional bounds, as an economic arbiter.

It was inevitable that governmental rate-making, under the embrasive procedure that is evidently amenable to no exact formulas, would endeavor to become a medium of social service and economic guidance. But social service and economic guidance, via rate-making, can have the effect only of inciting struggles for advantages.

And that is what it has come to already. Places on the Interstate Commerce Commission have risen enormously in importance during the last several years. That is why the center of the struggle has been over those places.

They will continue to rise in importance if the evolution towards the commission's becoming a board of economic control continues. It is not likely to continue, but it is doubtful that it can be stopped except by deflating the accepted powers of the commission. Moves already have been made to repeal the Hoch-Smith resolution and the provisions of an older law allowing the commission to fix minimum as well as maximum rates.

Governmental rate-making is thus threatened with a denaturing, if not overturning, by the evils that brought it about; that is, abuse and misuse, first by many of the railroad companies, of the tremendous power attaining to the right to lower and raise freight rates.

Unless halted by compromises, the row ultimately will have every locality, every section, every industry and group thereof on tiptoe concerning it. The Interstate Commerce Commission, by direction of the Hoch-Smith Resolution, has begun a general overhauling of the freight rate structure, and, as matters stand, it will be an overhauling of the entire economic structure of the nation, with the majority of a Washington board in a position to say which parts should prosper.

Unemployment in Good Times.

Conditions that, a year or two ago, began to present a new and unique problem of leisure now offer as equally singular a problem of unemployment. Some investigators declare that at the beginning of this year the industrially unemployed in this country were as numerous as at the low point of the economic depression in 1921. Other conditions were different. Production was far above that of the 1921 period. While some slack was in evidence, business and trade on the whole were good. The level of stock prices and the volume of stock exchange operations were still moving upwards as on the whole they have continued to do. Money was plentiful and interest rates low. The buying power of the employed was greater probably than ever before. Prices were moving downward and general wage rates were holding taut. Earnings of workers in jobs were not affected widely by part-time operations. There was evidence of the kind of suffering that usually is pathetically apparent during periods of hard times. By the long-period measurement times were good. Yet it is probable that three to four million of the office, store, factory, mining and other classes of urban workers were out of jobs, with little demand for help.

SODA ASH

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This condition was attributed largely to the developments which brought about during the last ten years the best times the affected classes of workers have ever known anywhere. The cost-of-living index for the country as a whole fell from 198 (based on 100 for 1914) in 1920 to 164 in 1927, a decrease of 22 per cent. The index for the weekly earnings of factory labor, in 23 industries, fell only 5 per cent. The index for per hour and per day wage rates held its own; in fact it rose a little. Thus, according to the figures in the U. S. Department of Commerce's Survey of Current Business for February, 1928, the average employed factory worker, though putting in from 5 to 10 per cent less time, was able to buy with wages earned in November, 1927, about 20 per cent more than his earnings brought during the average month in the booming days of 1920.

Comparisons with pre-war and even mid-war conditions make a still better showing. In fact, at the beginning of this year the real wages of the average urban worker in this country was about 40 per cent higher than at any time prior to 1919. That is to say, he could buy that much more of living necessaries with his earnings. And these earnings came from about 10 per cent less time on the job, which was due to the shortening of work days and weeks. This advance in well-being was the most remarkable in all the history of the world.

But it had points of weakness. The benefits of the advance were not evenly distributed. Some classes of workers gained a great deal more than did others—and those extra gains were made more at the "cost" of those other workers than of other elements. Farmers as a class were perhaps the worst sufferers from this unequal distribution of benefits but some industrial groups also were sufferers.

But the factor which had most to do with bringing about the general advance had a repressive effect on employment—the number of available jobs did not increase correspondingly. In 1927 twelve of the principal groups of manufacturing industries got along with about 10 per cent fewer workers than in 1923 and about 35 per cent fewer than in 1919. Yet their aggregate output was about 7 per cent larger than in 1923 and nearly 30 per cent greater than in 1919.

Something similar, but as a rule not so extreme, happened in several industries other than manufacturing. In some there was an above-the-average increase in real wages and almost no increase in per worker output. The building industry is one of these. Mining is another.

Roughly, however, per worker output in general industry increased 30 per cent or more during the last ten years, and there was an even greater rise of the real wage level.

This owed chiefly to unprecedented advance in the use of labor saving machinery, which advance was stimulated chiefly by high wages brought about by relative scarcity of workers, the last owing largely to limitations on immigration from abroad.

There came about a condition calling for extraordinary increase in per capita consumption through corresponding advancement in the general standard of living. This was too much for millions of folk. Living standards advanced but not equitably. The average person cannot raise one's living standards 40 per cent overnight without muddling the operation. When one suddenly is faced with the necessity of spending 40 per cent more than one has been accustomed to, a large part of the excess is apt to go, for a time at least, into wasteful luxuries.

This is what has happened in much part. We have greatly increased our consumption of silk while lowering that of clothing products as a whole. Per capita consumption of food, particularly of the staples, has declined. Thus consumption of articles that rank as necessaries has not risen with per man output of those articles, expanded facilities for producing them, and per capita ability to buy them. Increased foreign trade, expedited by loans, has offset this in part. But there still is a margin that makes for unemployment in times when practically all of the employed are unusually well-off. Another effect has been the curtailment, sometimes the obliteration of profits, on production, which makes for the anomalous condition described half-truly by someone as profitless prosperity.

The conditions, however, are scarcely more than growing pains of progress. These will pass and, after they have passed, will be found beneficial.

Two Caraway Bills.

Good examples of a species of legislation that often makes the U. S. Congress ridiculous—examples of a kind too often supplied by Southern members of Congress—are two measures put forth by Senator Caraway of Arkansas and moving probably towards adoption.

One of the bills might be entitled "A measure to promote bootlegging in the buying and selling of cotton and grain for future deliveries." It doesn't forbid such buying and selling; even the most Buncombesque Southern member of Congress would not dare make such necessary operations criminal. But the bill would make the law attempt to say that no cotton and no grain could be sold for future delivery except when actually or prospectively possessed by the person making the sale. It puts the burden of enforcement on the Postoffice Department and the telegraph and telephone companies, which could not legally transmit orders to sell such products unless each was accompanied by an affidavit attesting actual or prospective possession and intent to deliver the product sold. The prospective possession proviso would apply only to farmers who still could sell short by merely swearing that they plan to produce what is sold. Contracts of sale once made could be resold independently of proposed restrictions. Such a law would only add to the expense of hedging, or other short selling operations, and thus, by adding to the burden of marketing it, put another toll of distribution on the cotton and grain farmers' produce.

But the measure could be paraded as a protection of farmers against "gamblers in farm products;" yet it merely would turn such "gamblers" into bootleggers—with the usual raising of costs. This bill has been approved by the Senate committee on agriculture and forestry.

The other Caraway bill makes an equally futile gesture against "lobbying." It has been passed by the Senate. If it becomes a law, it may be a crime for even the President of the United States to discuss a public question with a member of Congress without first filing a lot of sworn data about the "pay" he receives and the reasons for his interest in the subject discussed.

So-called "lobbying" is a practically indefinable operation and no law yet passed has done more than confuse honest folk and help dishonest ones who deal with legis-

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lators. All such acts are reflections on the character and intelligence of legislative bodies.

Legislation and Ships.

A member of Congress who went to Europe at public expense last Summer to "study" shipping says:

"I do not see why . . . . the Government should hesitate to enact legislation to assure American producers and American commerce the adequate American merchant marine they should have."

Legislation has been enacted—world's of it. As the result of some of this legislation, nearly $4,000,000,000 of public funds has been spent during the last ten years on the building and operation of actual ships. Yet we have almost no overseas merchant marine. Other legislation has caused many American owners of vessels to put their operations under the flags of other countries. Most of the new ships built or bought by Americans for overseas service have been put, in recent years, under foreign flags. This has been done simply because laws enacted by Congress make it difficult—in many cases impossible—for vessels to be operated under the American flag.

Then why not begin by repealing the impeding legislation which is on the statute books? No member of Congress dares to even suggest that that be done. But many members are for more appropriations, for new ships and other expansions of Shipping Board operations. What they are for is a permanent policy of government ownership and operation of the merchant marine. In that there are unlimited possibilities of political pork, graft and waste; in it there is scarcely a probability of the procurement of a real merchant marine.

The Outgo of American Capital.

Probably not in all the history of the world has money or its equivalent flowed out of a country as it has gone from the United States in recent years. The par value of foreign securities publicly offered and presumably sold in this country last year was above a billion and a half dollars. After those representing refunding operations are deducted, the total is nearly $1,400,000,000. In addition, the United States Department of Commerce estimates, more than $300,000 000 of American capital was invested directly in foreign enterprises, either by outright purchase of property or private acquisition of securities.

In 1914 less than $50,000,000 of American capital went for investment to other lands, and most of this went to nearby countries on this continent. American capital is now going to all the world.

How long will this outgo continue, and what will be the effect if it does, or doesn't, stop? Nobody knows. The outgo undoubtedly has helped sell American products, or some of them, abroad; for a lot of the lending has been in the form of goods rather than actual money. But much of it has been real money outgo. Lately, the gold movement trend has been against the United States. But we still have nearly twice as much gold as we apparently need.

Present indications are that, for several years more at least, capital will continue to flow out of the country in large quantities.

What the Southern Mills are Doing.

In this day of mergers and rumors of mergers in textile mills, a recent announcement in South Carolina, telling of the formation of the Brandon Corporation, with a capital of $9,500,000, is of interest. This organization is formed to operate the Brandon Mills, the Poinsett Mills, both in Greenville, S. C., the Woodruff Mills, Woodruff, S. C., and the new mill and finishing plant being erected at Traveler's Rest, near Greenville, S. C. These mills are controlled by Augustus W. Smith, of Greenville, S. C., and Woodward, Baldwin & Company, of New York. The merger represents a change in the financial structure of organization. The directorate of the Brandon Corporation is composed of W. H. Baldwin and W. A. Baldwin, of New York; Summerfield Baldwin, Jr., of Baltimore, Md.; J. W. Norwood, H. T. Mills, C. E. Hatch, and Aug. W. Smith, of Greenville.

In this same connection it is reported that the Gossett Mills will be formed, with headquarters in Anderson, S. C., to operate the Riverside & Toxaway Mills, and the Gossett Dyeing & Finishing Co., of Anderson, and the Williamston Mills, Williamston, S. C., and other interests controlled by James P. Gossett, B. B. Gossett and associates.

The new mill planned by the A. F. McKissick interests near Greenville will be located at Arial, in Pickens County, two miles from Easley, S. C. The plant will contain 21,160 spindles and complementary looms for manufacturing print cloths. It is understood that the equipment will be removed from an eastern location, and that the McKissick interests will build the property.

E. G. Jessee, formerly superintendent of the Watts Mills, Laurens, S. C., has formed the M. & J. Mills, at Laurens, to operate 20 looms for the manufacture of broadcloths, handkerchief goods and rayon marquisettes.

The capacity of the Pendleton Mfg. Co., Autun, S. C., will be doubled in the near future, according to E. N. Sutton, proprietor.

Contract has been awarded, through J. E. Sirrine & Co., engineers, to the Gallivan Building Co., Greenville, for the construction of a picker room for the Baldwin plant of Aragon-Baldwin Mills, Chester, S. C. The proposed building will be 107x75 feet and will be two stories high, with basement. Machinery now in operation will be transferred to the new unit upon completion. The first floor will be used for winders, the basement for storage, and the second story for picking equipment.

Eureka Cotton Mills, Chester, S. C., has installed a number of new cards, and new drawing and fly frame equipment.

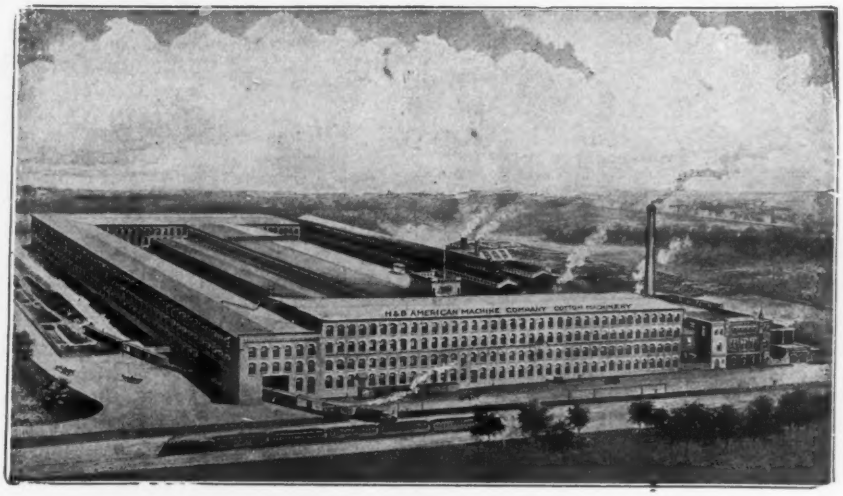
Graniteville Mfg. Co., Graniteville, S. C., operating several mills and the Gregg Dyeing Co., at Graniteville, have commissioned J. E. Sirrine & Co., Greenville, S. C., to investigate the feasibility of constructing a central steam power plant to supply power to their various plants.

According to report, the Sayles-Biltmore Bleacheries, Biltmore, near Asheville, N. C., plan the early erection of two additional units to their present properties.

A new mill for Hickory, N. C., is planned by Francis F. Patterson, of Charlotte, son of the late S. F. Patterson. Plans are being made for the new corporation. The size and product of the new mill have not been announced.

Gastonia Weaving Company, Gastonia, N. C., is enlarging its facilities for making high-grade labels, etc.

COTTON MACHINERY



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EXHAUST OPENERS—HOPPER BALE OPENERS—CRIGHTON OPENERS
BUCKLEY OPENERS—SELF FEEDING OPENERS

FEEDERS—COTTON CONVEYING SYSTEMS—ROVING WASTE OPENERS
INTERMEDIATE and FINISHER LAPPERS

REVOLVING FLAT CARDS—DRAWING FRAMES (Mechanical or Electrical Stop Motion)
SLUBBING—INTERMEDIATE and ROVING FRAMES
SPINNING FRAMES and TWISTERS
(Band or Tape Driven)

SPINDLES—FLYERS—FLUTED ROLLS

Descriptive Bulletins Sent on Request.

H & B AMERICAN MACHINE CO.

Pawtucket, R. I.

Southern Office, 814-816 Atlanta Trust Co. Bldg., Atlanta, Ga.

Twelve new Jacquard looms are being installed.

Rudisill Spinning Mills, Inc., Lincolnton, N. C., have been formed with a capital of $250,000 to take over the Roseland Spinning Mills, Inc., at Lincolnton. M. M. Rudisill, C. A. Rudsill and W. B. Putnam are among the organizers.

Wilson Rayon Products Company, Wilson, N. C., has been incorporated by Graham Woodward, Bruce Little, and others. It is understood that a rayon weaving mill will be erected.

The recently formed Southeastern Dye & Bleachery Works, Salisbury, N. C., will erect a plant for dyeing, bleaching and finishing. T. H. McKay, formerly of Providence, R. I., is in charge.

Belk Manufacturing Company, Forest City, N. C., is to double its capacity for manufacturing bedspreads, etc. A slasher room, weave room and cloth room will be added. W. H. Belk, head of the Belk stores in the Carolinas, is president of the company.

Pennsylvania Textile Mills, Central Falls, N. C., are adding a weave room, to which machinery is being removed from Clifton, N. J.

Alamance Novelty Mills, Burlington, N. C., have completed a building 100x32 feet, in which sewing and boxing operations for the fancy bedspreads manufactured by the mills have to be housed.

A group life insurance policy was recently taken out by the Wabena Cotton Mills, Inc., Lexington, N. C., for 52 employees, through the Prudential Insurance Company of America. The policy is of the contributory type, the employees and the Wabena Cotton Mills, Inc., sharing in the payment of the premiums. Each worker is insured in amounts ranging from $500 to $1,000, according to rank or position held.

Dalla-Noval Mills, Dallas, Ga., are erecting a number of new homes for operatives.

Considerable enlargement and expansion work will be carried out at the Cochran Cotton Mill No. 2, at Hawkinsville, Ga. W. H. Mooney, recently of Fall River and prior to that time superintendent of the Bibb Mfg. Co., at Columbus, will be the local superintendent. It is understood also that Floyd Jefferson and other owners of the Fitzgerald Cotton Mills, Fitzgerald, Ga., will erect a new mill at that place.

Pacolet Mfg. Co., New Holland, Ga., is constructing a monitor roof covering the entire top of the building. A large electric sign bearing the name of the mill will be erected on the monitor.

Crown Cotton Mills, Dalton, Ga., are building a four-story warehouse, 100x100 feet. Robert & Company, Atlanta, are the engineers.

Buchanan, Ga., is interested in securing a cotton mill. Local interests have commissioned Charles E. Pearce, agent of the Tallapoosa Mills, Tallapoosa, Ga., to investigate the possibilities of a textile plant in that location.

Announcement made by the industrial department of the Tennessee Electric Power Company is that M. J. Frank & Co., of New York, will erect a $750,000 silk mill at Murfreesboro, Tenn. It is understood that 400 broad silk looms, manufacturing crepe de chines, crepe back satins, and other plain and fancy goods, will be installed in a building, which is to be erected. The company now operates plants at Cementon, Pa., and Northampton, Pa.

James G. Merriman, Al J. Lewis, and W. J. Harris, representing the Oswego Yarn Mills, Oswego, N. Y., Adrian Knitted Products Co., Adrian, Mich., and Sauquoit Knitting Co., Sauquoit, N. Y., recently visited Covington, Tenn. It is understood that these three mills will merge and locate in the South with a $3,000,000 plant.

The additional mill to be erected by the Strowd-Holcombe Textile Mills, Birmingham, Ala., will be two stories, 120 x 299 feet, of steel and concrete with brick walls, cast iron columns and steel beams. Robert & Co., Atlanta, Ga., are the engineers.

Pepperell Mfg. Co., Opelika, Ala., will enlarge its plant with an 84-foot extension in which 210 additional looms, giving the mill a total equipment of 23,000 spindles and 839 looms, will be installed.

It is reported that the New York Braid Co., 243 W. 17th St., New York City, is interested in establishing a plant at Scottsville, Va.

A five-story warehouse will be erected at the Houston Textile Mills, Houston, Texas. Contract has been awarded to Don Hall of Houston.

New England Mill Situation.

The curtailment of production among New England cotton mills is substantially greater than that reported from the South, according to the figures issued by the Government on cotton consumption in the two sections. The curtailment at Fall River amounts to 50 per cent of the capacity output and in New Bedford it averages fully 30 per cent of all the looms installed. Mills in Maine and New Hampshire are operating less than 75 per cent capacity in a number of instances, some running but four days a week and others running five days with much machinery idle.

The most active division in the industry in New England is that devoted to printed goods. The corporation printers have been running to capacity and in some instances overtime for some time and still have from two to three weeks of capacity activity ahead of them. The job printers are equally well occupied, several of the plants having part of their equipment engaged all night to maintain operations in full at the printing machines. It is an unusually active printed goods season. On the other hand the dyeing and bleaching departments of the finishers are not well occupied and where they are busy most of the goods going through are of rayon and cotton construction.

The inactivity of some of the piece dyeing plants has not been equalled in many years and is due very largely to the lack of demand for the staple linings in black or other colors and the substitution of printed or rayon decorated linings. The 4-4 bleached goods business has continued light for some time and this is reflected in less occupation in southern as well as New England bleacheries devoted largely to the handling of 4-4 bleached goods. The sheet and pillow case business is still light and some of the large New England plants are curtailing 25 per cent.

Recent financial reports of New England cotton mill properties have disclosed no very great profits but the year 1927 was very much better than 1926. It is curious to note that some plants located in the cities that have been most severely affected by the exodus of cotton mills to the South have made very gratifying financial showings

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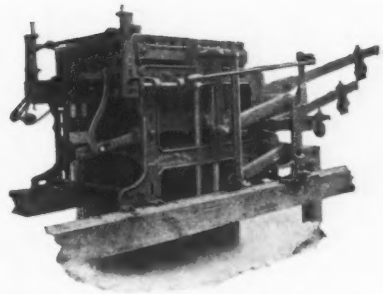

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for the past year. For example, in Lowell where the Appleton, Tremont & Suffolk, the Massachusetts, and some other cotton mills have been idle or have changed hands, the Merrimack Manufacturing Co. of that city showed very good earnings and a better financial condition than any reported by the corporation in the past 40 years. In Fall River, the King Philip, a fine goods plant, in existence more than 50 years, showed handsome earnings while nearly a fourth of the capacity of that city in cotton mill production is idle and will probably not restart.

In New Bedford during the past month three tire fabric mills were restarted and are running as full as they can be in the period of making preparation for the training of new help and the resumption of work on machinery that has been idle for some time. In these plants the management insisted that none but American citizens should be given employment and that those hired should be willing to undertake work under the direction of their overseers, whatever may have been their practice in running machinery in other mills. The purpose of this was to permit the management to install methods of machinery operation that are different from those in use in many other mills and which are being adopted as trial methods to bring about greater efficiency and economy in production.

It is very difficult to induce the average mill operative to accept changes in the methods of his work but these tire making concerns have overcome objections by hiring no operatives who would not submit to new training, if necessary, or who did not care to work under the methods described by plant overseers.

There is still considerable machinery in New England cotton mills that will eventually find its way South to be installed in new or old plants there. This phase of the movement of New England mills to the South is of particular interest in proving what has often been stated here that it was not due to old machinery alone that the New England industry proved unprofitable in some centers. As a matter of fact some of the machinery that has gone South has not been operated one half the time that much of the machinery has been operated in plants in the South owned by New England corporations.

There is no longer any reason to doubt that an end has been seen for some time to the enactment of restrictive and adverse legislation affecting cotton mill industries in New England. In two or three small towns recently exemption from taxation was granted to new industries of small caliber, and in several cases assessments and taxation of mill properties have been lessened to enable their stockholders to reorganize them in a sound financial way. In the efforts of manufacturers to secure reasonable valuations of mill properties assistance has recently come from citizens who are engaged in business in various communities but who are not directly connected with the cotton mill business. They believe that if industry of any kind is to be maintained in a section there must be some let-up in the disposition of assessors to over-value and over-tax the factories.

One of the most significant facts in legislation in recent years has been the decision of the Massachusetts Legislature to report favorably upon a law suggested permitting women to work longer than 48 hours weekly under certain conditions. While the proposed statute has not yet been enacted the fact that any legislative committee would report favorably upon a revocation of some of the harmful legislation of past years is looked upon as a most encouraging feature. It may be a case of "locking the door after the horse is stolen" but it surely indicates that a change in the sentiment toward industries is finally under way.

Much interest is being taken throughout New England in the next meeting of the National Association of Cotton Manufacturers which proposes to observe the 100th anniversary of the granting of the first patent for ring frame spinning to James Thorp, a cotton manufacturing pioneer who worked in the Slater Mill at Pawtucket. Guests are expected to represent the American Cotton Manufacturers Association and other interests allied with the cotton industry. The old Slater Mill at Pawtucket which was the first complete cotton mill in the country has been turned into a museum that is decidedly worth a visit.

The new President of the Association is the active head of the B. B. & R. Knight organization in Rhode Island and preparations known to have been made to date in that State for the entertainment of guests warrant the expectation of a most unusual gathering of cotton manufacturers. Incidentally the new President, in his management of the B. B. & R. Knight properties, has worked out a plan whereby some part of the products of the mills are finished by the mills and sold direct in printed form for their account.

One of the great difficulties affecting the product of many New England mills is the seeming inability of merchants to create a demand for yarn-dyed fabrics of the gingham or zephyr type of all-cotton or of woven rayon and cotton mixtures. The vogue of printed merchandise is so great that mills equipped to make the finest yarn dyed products produced anywhere are unable to operate in full. The contraction in gingham production in the past few years has been enormous. The plant at Fitchburg known as the Parkhill Mill and now owned by the Amoskeag Manufacturing Co. has been dismantled of its best machinery which has been moved to the Manchester, New Hampshire, plant and the balance of the machinery as well as the mill properties themselves have been offered for sale at auction.

It was in this plant that the famous Toile du Nord ginghams were first made and developed more than 45 years ago when fine ginghams production in this country was supposed to be impossible. Later on the Parkhill Mill became the center in which some of the finest qualities of yarn-dyed cotton products were made. The passing of the mill is a parallel in a way with that of the Everett Mills of Lawrence, another gingham mill that developed Everett Classics, one of the most popular ginghams ever known in the American trade. The machinery from this plant is to be transferred shortly to Alabama to be installed in a series of small mills.

Even such highly organized and efficient plants as the Lorraine of Pawtucket has not been able to find a capacity outlet for its very high-grade production. It is not a question of competition that prevents the sale but a decided style aversion to ginghams such as has never been known in the history of cotton manufacturing. All manufacturers are agreed that these yarn dyed products are usually the most serviceable cotton fabrics offered in the markets but service in wear does not carry the appeal that style does with the present generation.

Interest remains keen all through New England in the many changes that are being made in merchandising meth-

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ods. One of the latest to attract great attention has been a guarantee by the Pacific Mills that its Pacific sheets will wear for three years and its Truth product will wear two years. Another development is the high pressure being used by the sales departments of the Pepperell Manufacturing Co. to establish a vogue of colored sheets similar to the ones that have been used in some degree in French markets. Another interesting development in merchandising mill products is an arrangement that has been made by some brokers to purchase gray goods, have them finished, and to sell them direct to those who cut up materials for garments of different kinds. This latter change has aroused considerable opposition among converters.

It is becoming easier for New England cotton manufacturers to secure banking assistance for the distribution of their products if they can show that the money is to be used in trying out more modern methods in keeping the products moving through wholesale channels to the retailers. Plans that have been in operation for a year or two whereby wholesalers become agents for the mills in carrying their stock in quantities sufficient to supply retailers regularly are looked upon very favorably at the present time.

Cotton Comment

BY H. AND B. BEER.

New Orleans, March 10th, 1928.

Although there was inactivity during the period under review, the undertone of the market was comparatively steady, values having the ability to recover from depressions since they show an advance of about $2 per bale compared with one month ago.

The main drawback to the market this season was the poor export demand, due to European visible and invisible stocks being large at the opening of the season, which permitted spinners to buy only sparingly of this season's crop. Shipments from the United States total, since August 1st, only 5,440,000 bales against 7,983,000 to even date last season.

Spinners' takings, however, make a better showing than exports since spinners took liberally from European stocks, which, compared with what they were in early season, are now comparatively small. Spinners' takings of American cotton thus far this season total 10,249,000 bales against 11,793,000 to even date last season.

The same conditions probably apply to mill stocks, large in early season, comparatively small now. The takings, plus inroads made on mill stocks, provided supplies that made a large consumption possible in the face of small imports from America.

According to the International Federation of Master Spinners, the world consumed 8,826,000 bales of American lint cotton during the first half of this season against 7,423,000 for the corresponding period last season. Because of the large mill production during the first six months of this season causing an accumulation of goods, consumption during the last half of this season is generally expected to be much smaller than for the last half of last season when it was 8,357,000 bales. Whatever the world's consumption of American cotton may be for the last half of this season, the fact remains that the first half of the season has a lead of 803,000 bales on the first half of last season.

As yet there is no revival of consequence in the demand for spot cotton in the South, but since stocks in Europe and America have been reduced considerably, now to much below what they were at this time last year, due to heavy consumption by American and foreign mills, it is reasonable to anticipate a revival in the demand at an early date, perhaps sooner than generally looked for, in which event it would probably be difficult to fill commitments except, perhaps, at higher prices.

At the opening of this season, August 1st, last year, the world's carry-over of American cotton, according to Secretary Hester, was much larger than at opening of the previous season—7,238,000 bales including linters against 5,639,000. Now the situation is just the reverse, the available being much smaller than one year ago, due to this season's very small crop and large consumption by the world, as noted by the following comparatives:

DISTRIBUTION OF WORLD'S VISIBLE SUPPLY, AND WORLD'S AVAILABLE OF AMERICAN COTTON EXCLUSIVE OF WORLD MILL STOCKS.

March 9th—Bales—	This year	Last year
In the United States	2,612,000	3,598,000
In Europe and afloat for Europe	1,991,000	2,786,000
World's visible supply	4,603,000	6,384,000
Unmarketed, indicated	3,203,000	4,293,000
World's available, about	7,806,000	10,677,000

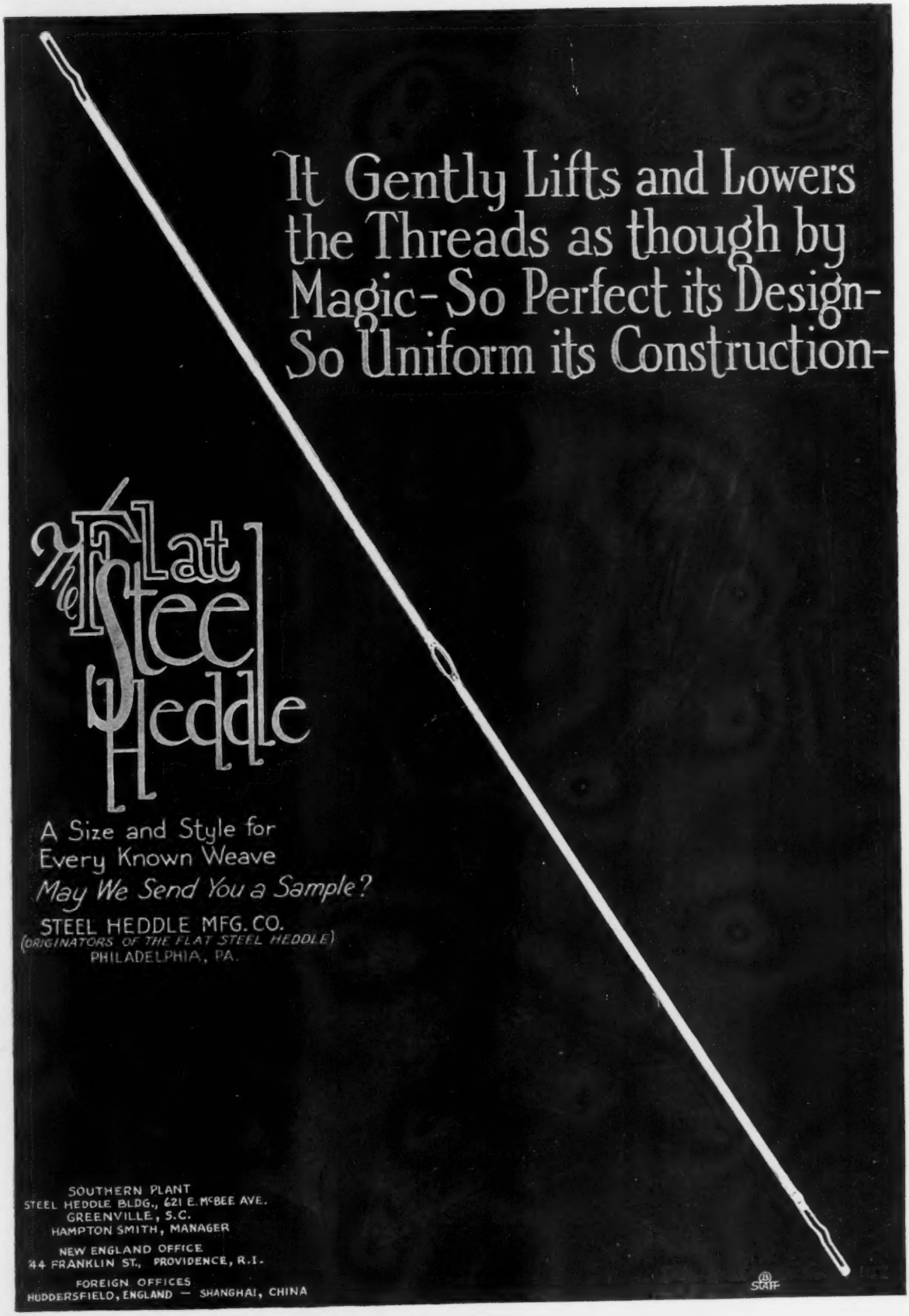
With consumption running so large, stocks diminishing and already low, and considering the uncertainty attending the next crop, especially with the dreaded boll weevil to contend with, cotton appears to be in a comparatively strong position, present and prospective, unless a large crop is made this year.

As regards the outlook for the next crop, prospects at the moment seem to be favorable, except for the want of subsoil moisture in West Texas, and the uncertainty as to what the weevil may do. The land is reported in good condition, sales of fertilizer tags to the close of February were 28.2 per cent larger than to same date last year, labor is reported ample, except for a slight deficiency in Georgia and Louisiana, and while the acreage remains uncertain, the general idea is that there will be a moderate increase, perhaps about five per cent.

But weather conditions during the planting, growing and maturing periods have to be reckoned with, as do the destructive boll weevil and other insects. It was officially reported that a very large number of boll weevil went into hibernation this winter, and although some very cold weather was experienced in early January, private advices from the interior are to effect that many live weevil are to be found in the fields. It is possible, if not probable, therefore, that the emergence in the Spring may be more than normal, in which case much uneasiness may be entertained as to the final outcome of the next crop, especially if a wet Summer is experienced, which, like last Summer, would likely cause the weevil to become destructive.

Changes in DuPont Rayon Organization.

Dupont Rayon Company, Park Avenue Building, New York City, announce the appointment of H. J. White as general manager of the rayon department, including production and sales, with J. S. Denham, formerly director of sales, as assistant general manager. Frederick R. Brown, formerly of Butler Prentice & Company, has been made director of sales.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STAFF

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

J. O. BLACKMON has accepted a position as general superintendent of the Southern Manufacturing Company, Athens, Ga. For the past year and a half he has been manager and superintendent of Atlantic Cotton Mills, Macon, Ga. Mr. Blackmon was connected with the Unity Spinning Mills, LaGrange, Ga., prior to the time the Hillside Cotton Mills started operations in 1916, and was secretary to S. Yates Austin, who was vice-president and general manager of both mills, and was appointed superintendent of Hillside Cotton Mills in 1917. He resigned this position in 1925, and was with Callaway Mills, Inc., New York City, until September, 1926, when he accepted the position of manager and superintendent at the Atlantic Cotton Mills. As reported last month, D. C. Collier, formerly of Barnesville, Ga., recently became president of the Southern Manufacturing Company at Athens.

S. T. GADDY, superintendent and general manager of the Fidelity Hosiery Mills, Newton, N. C., died after a brief illness on Sunday, March 4th. He was 51 years of age. Mr. Gaddy was one of the best known hosiery manufacturers in the South. Two of three brothers who survive him are C. W. Gaddy, manager of the knitting department, Wiscassett Mills, Albemarle, N. C., and B. D. Gaddy, superintendent, Golden Belt Mfg. Co., Durham, N. C. He had been connected with the Fidelity Hosiery Mills for nearly thirty years, and was active in civic, religious and educational affairs. His wife and six children, besides his brothers, survive him.

J. M. KENNETT has resigned as superintendent of the Mooresville Cotton Mills, Mooresville, N. C., after an association of thirty years with the organization.

A. N. SIFFORD has been elected secretary of the Blacksburg Spinning Mills, Blacksburg, S. C.

F. L. STILL, superintendent of the Victor plant of the Victor-Monaghan Company, Greer, S. C., will also act as superintendent of the Apalache plant, at Arlington, S. C.

WALTER PATE has become overseer of carding at the Springfield plant of the Morgan Mills, Inc., Laurel Hill, N. C.

J. M. SIMPSON has been appointed overseer of weaving, warping and slashing at the Hillside Cotton Mills, LaGrange, Ga., succeeding the late C. T. Hughes. Mr. Simpson was promoted from assistant overseer, and this vacancy has been filled by the promotion of Harry H. Redwine to this position.

E. D. HILL, of the Allis-Chalmers Mfg. Co., is now located at 42 Church Street, New Haven, Conn., to more effectively serve that section in connection with motors, pumps and Texrope drives. R. T. Stafford, formerly district manager of the company's Seattle office, has been made assistant manager of the electrical department in charge of sales and engineering at the Pittsburgh transformer works. John Alberts has been made Seattle district manager.

C. W. LEISTER has resigned as cloth room overseer at the Erlanger Cotton Mills, Lexington, N. C., to accept a similar position at the Slater Mfg. Co., Slater, S. C.

A. W. STUBBS has been elected president and general manager of the Cornelia Cotton Mill, Inc., which is erecting a plant at Cornelia, Ga. Milus Galloway is vice-president; and Wesley Ritchie is secretary and treasurer.

L. L. BROWN, chairman of the board of governors of the Southern Textile Association, and until recently general superintendent of the Clifton Mfg. Co., Clifton, S. C., has been selected by the International Shoe Company to have charge of the new mill which that company is building at Malvern, Arkansas, for the manufacture of shoe drills and similar products. Erection work on the plant will begin shortly.

ALVAH DAVISON, founder and president of the Davison Publishing Company, died on February 7th at the Royal Poinciana Hotel, Palm Beach, Fla., after only five days' illness. He was born in New York in 1863 and had been a resident of Brooklyn for 38 years. Mr. Davison's company are the publishers of Davison's Textile Blue Book and other textile directories. Mr. Davison began his business career at 14 years of age, being employed at that time by a drygoods firm at $2.00 a week. In 1888 he was married to Harriet Louise Selkreg. At the age of 25 years, he borrowed $500.00 to purchase a one-man code book business in New York, which he developed into the publishing of textile directories covering the entire textile industry of the United States and known in 30 foreign countries.

In 1897 his brother, Herman E., joined him in the business, and in 1903 and 1910 Harold M. and Elmer H. Davison were taken into the business, and in 1925 Alvah Davison's daughter, Ruth, and son, Alvah, Jr., were given an interest. In later years Mr. Davison relinquished many of his business duties, devoting his time to travel, art, nature, finance and economics, etc.

LAURANCE MACKIRDY has resigned his position at the Aurora Cotton Mills, Burlington, N. C., to become overseer of cloth room at the Appleton Mfg. Co., Anderson, S. C.

R. L. COX has been promoted to the assistant superintendency of the Apalache plant of Victor-Monaghan Company, Arlington, S. C. He has been overseer of weaving at Mill No. 2, Victor plant, Greer, S. C.

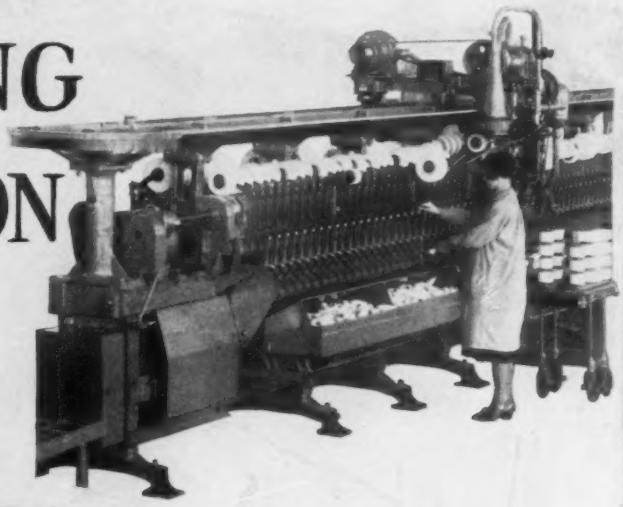
F. N. JACKSON has been promoted to overseer of carding and spinning at the Apalache plant, Victor-Monaghan Co., Arlington, S. C. He is succeeded by E. D. Thomas as night overseer of spinning.

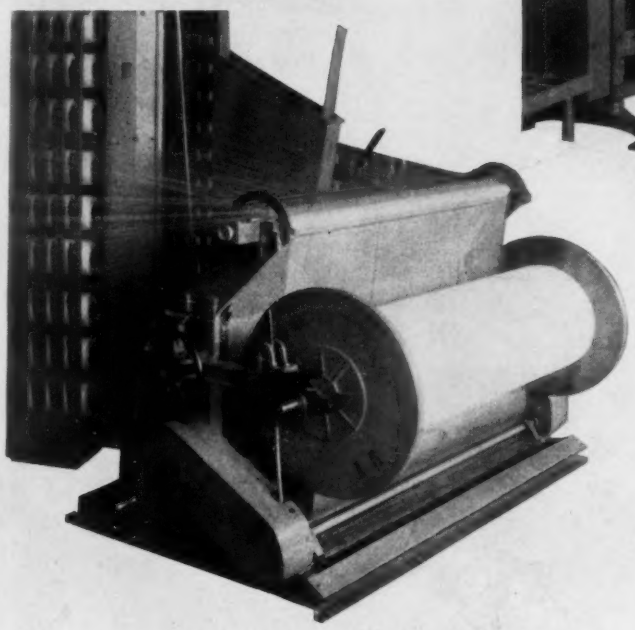
T. G. BULLARD has become superintendent of the Eufaula Cotton Mills, Eufaula, Ala., succeeding T. S. Poteat, resigned.

B. M. CORTLETT has been named general manager of the new Belle Meade Hosiery Mills, Nashville, Tenn.

CLARENCE B. SEAL, who recently was connected with the U. S. Tariff Commission, has been made southern sales manager for the Philadelphia Felt Company, Philadelphia, Pa. Mr. Seal was formerly director of the A. French Textile School of the Ga. School of Technology, Atlanta, Ga.

A WINNING COMBINATION





AUTOMATIC SPOOLER
HIGH SPEED WARPER

Spool and warp yarn at 1200 and 500 yards per minute, respectively, and actually improve the quality of the warps. Low and uniform tension and "Every Knot a Weaver's Knot" will automatically increase your production.

On February 1, 1928—61 representative Cotton Mills were using or had on order:

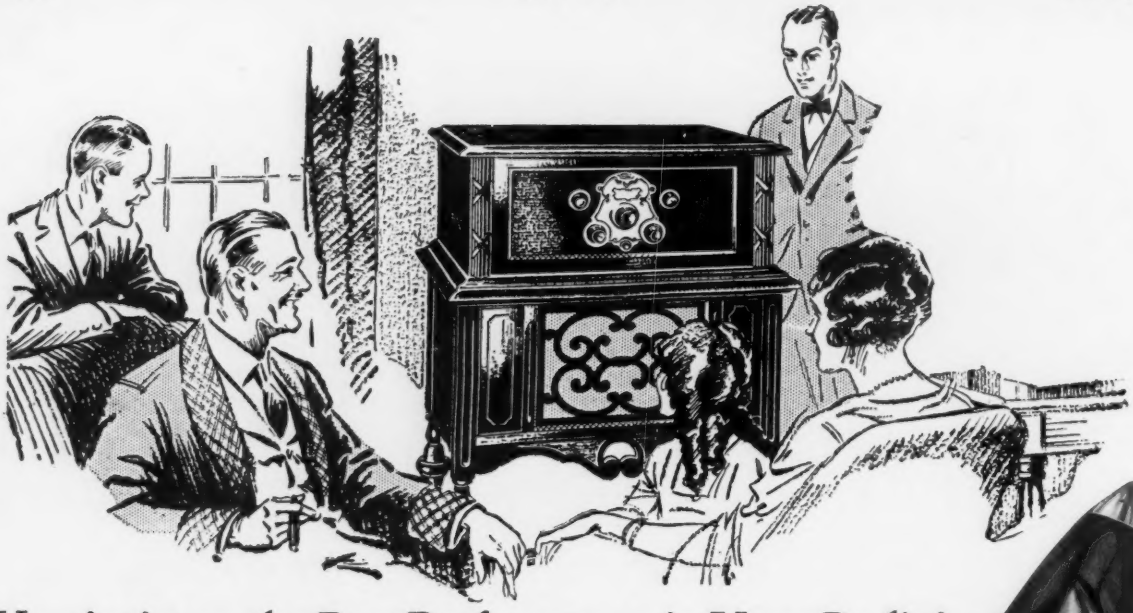
254 Automatic Spoolers
198 High Speed Warpers

This equipment will improve conditions in your mill

BARBER-COLMAN COMPANY

GENERAL OFFICES AND PLANT
ROCKFORD, ILL., U. S. A.

FRAMINGHAM, MASS. GREENVILLE, S. C.



You insist on the Best Performance in Your Radio! why be Satisfied with Less in Bobbins, Shuttles, and Spools?

Regardless of how low the price you wouldn't consider purchasing a radio of questionable quality. In personal matters like this you insist on the best, you want performance.

In your mill, too, you expect the best performance but do you give your spinners and weavers the best Bobbins, Shuttles, and Spools, or do you buy strictly on price?

Six factories are kept busy producing U S Better Bobbins, Shuttles, and Spools. Mill men would not be buying our products in this volume, if they could buy similar quality at less cost.

The real cost of Bobbins, Shuttles, and Spools is not the quoted price. It is the first cost plus your waste and seconds accounts. That's where U S Better Bobbins, Shuttles, and Spools prove their economy.

Only the best materials and scientific workmanship backed by 50 years experience, enter into their making. Quotations on U S Products are not always high. Let us prove it.

U S salesmen are specialists on Bobbins, Spools, and Shuttles. Order direct from U S for real helpful and understanding service

WRITE, WIRE OR 'PHONE.

U S BOBBIN & SHUTTLE CO.

PROVIDENCE, R. I.

Branch Offices:

Greenville, S. C.

HIGH POINT, N. C. PHILADELPHIA, PA. ATLANTA, GA.

BUILDERS OF BETTER BOBBINS, SPOOLS, AND SHUTTLES

AN OLD TIMER SAYS

In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brothers along,
"Old-Timer", finds the sunshine of living

Old-Timer has been to town, a big town. Had several hours to do nothing, so he walked and walked and walked. Here are some of the things he saw:

People, lots of people. Gosh, I didn't know there were so many people in the world.

And so many kinds.

There goes a girl that left her skirt at home, or most of it anyway—the bottom part.

Now we are coming to the market district—sounds like a gang of blackbirds. Looks to me like everybody is talking at once. Vegetables, vegetables, wagon loads, carloads of them. Darn, there is enough greens to feed the world. And fruit! Well, it looks like they have moved California and Florida both here in this place.

Look, there goes a wagon with three horses to it! But I had already found out this was no one-horse town when I saw a fellow in a white suit going along taking up everything he saw in the streets. Believe I had rather have a job sweeping or blowing off looms or something like that in the mill.

Now, there is a fellow going to the waste paper boxes on each corner and taking the newspapers out, doubling them up real nice and taking them with him. Now what in the dickens do you suppose he is going to do with them?

Now look at that guy walking right along talking to beat the band, and no one paying any attention to him. I have been accused of being pretty bad to talk, but by heck I've never been guilty of just talking to nothing.

Zowie! There's another dame that is not crazy about keeping the cotton mills running by buying goods to make a skirt.

Hey, there, you rube! Can't you see the signal lights? Yes, officer, but why in Tom Thumb do you expect a man to look at signal lights when you let girls come out on the street that way?

I have seen so many good things to eat in the windows that I am just about perished. . . . Yes'm, I beg your pardon. I didn't know you had to pay before you eat. You don't, but you must have this check so the clerk behind the food counter can check it as you get the articles of food you wish.

Well, of all the fool ways—now, madam, I have been in the best cafeterias in Greenville, Spartanburg and Charlotte and just heaps of places that are just as good as this.

Move on there, you're blocking the line. Sure, Cap, but this is the bangedest dangedest place I ever got into.

Say, lady, give me another one of those checking things. This one is punched full of holes and that bird won't punch it any more. Oh, boy, I sure am making up for the last ten years in eating. Funny thing, you know the table is one arm of the chair you sit in. Well, my table would not hold all I had, so I just put my pie in the chair next to me. Then I was so busy with all of those good eats I forgot all about that pie until the man next to me started out. Then I saw my pie, but unless you had seen that pie before you wouldn't recognize it at all. He must have weighed about 250. Anyway, I never saw one piece of pie spread over such a large area in my life.

Now I got to walk to keep from bursting. Looks like a good show there, but I'm afraid to sit down.

Don't think I ever saw so many hat stores. When the drug store sheiks quit wearing hats, I thought the hat business was sure for a fall, but not in this town.

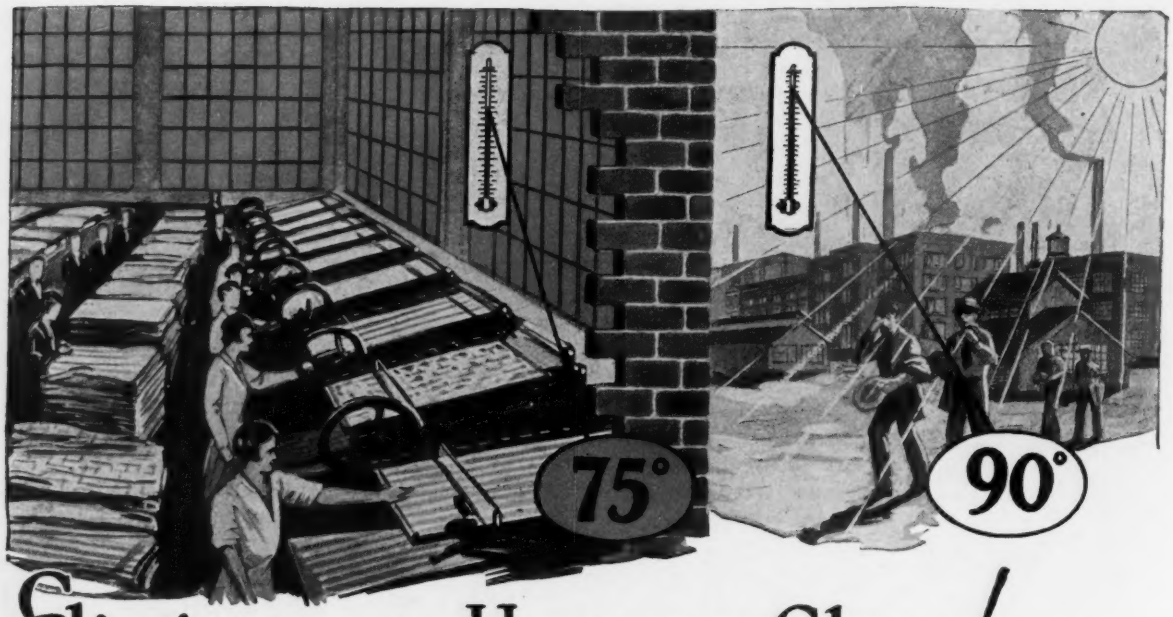
That sure is some fine building. Oh, it's a hotel! Well, being as I will want to sleep some tonight I'll see about a room. What's your rates, Mister? We can give you a very nice room and bath, two large windows, eastern exposure, for $12.00. Beg pardon, I didn't ask for weekly rates, but just one night. Well, that's the daily rate. Good day, sir, guess I am doomed to walk all night.

Holy smoke, that old man picked up a cigar stump.

A sign: Rooms, 50 Cents. Riches and poverty all mixed up in this place. There goes a Rolls Royce limousine with an aristocratic old man sitting in the back with cotton in his ears, at least he has cotton in the ear I see. We all have our troubles, don't we?

Dad jim! I believe that fellow would run over me. I'd like to see him drive in *my* town where the speed limit says 10 miles per hour. That's what I can't understand. Here in this big city where cars and people are as thick as flies, they boom by you so darn fast that your coat tail never needs any dusting, while down in my town where a car comes along about every so often they want you to go in low gear as soon as you strike the city limits.

I'm sure disappointed. Bet I've seen a billion people, more or less, and would you believe it, not a soul I know. Now, down our way I can go to most any of our good towns and somebody is sure to yell out, Hey there, Old



Eliminate *the* Heat *and* Glare!

by Coating Your Windows with SKYCO No-Glare

ONE of the greatest contributing factors to employee inefficiency is the tiring heat and glare of the sun pouring in through unprotected glass. The glare means eye-strain and half-sick workers. The heat produces that dull, sagging fatigue that "plays hob" with a steady production schedule.

SKYCO No-Glare—a Positive Preventive

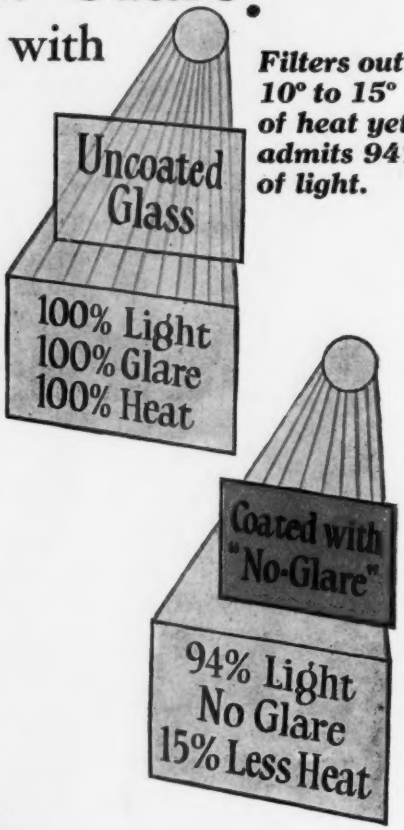
Some years ago chemical research perfected a true and economic cure for these evils—*SKYCO No-Glare.* No-Glare is a sky-blue liquid that is painted or sprayed on your windows or skylights. It filters the sunlight, absorbing the red rays that cause the heat and glare—and yet allows 94% of light to enter. You can even look at the sun through it.

Surprisingly Economical

No-Glare may be coated on windows either on inside or outside (rain won't wash it off) and one application lasts throughout the sun glare season. The cost (less than ½¢ per sq. ft.) is so small when compared to expensive shades and blinds that it is almost negligible.

Used by textile mills all over the country. Sold by mill supply houses. Price $2.50 to $3.50 per gallon, according to quantity.

THE SKYBRYTE COMPANY
1190 Hanna Bldg., Cleveland, Ohio
Chicago Branch: 104 So. Michigan Ave.



Filters out 10° to 15° of heat yet admits 94% of light.

Gives a Cool Diffused Light — SKYCO NoGlare — *Saves Expenses of Shades*

Timer. These birds must be stuck up or something.

There's a fellow counting his money. Wonder how much he has. That hat certainly doesn't suit that man. He should look in the glass.

Am sitting in the writing room of the hotel. Here comes a girl looking for some one. Wonder if it is her beau. No, there they are, her mother and father, evidently. There is nothing more touching to a lonesome person than to see members of a family meet, kiss and embrace each other. After all, the pleasures of this life depend on your dear friends and loved ones. It is a natural instinct with all of us to want money, riches, but we do not realize that friends, true friends, are more pleasure than all the money in the world. For example, put a man off in a desert, give him a million dollars and four or five negroes to wait on him, and in a few months he will want to come back to Bunkville or whatever place he is from and see the boys, his friends.

That big negro has been standing at the door of the hotel for two days to my knowing. I haven't seen him do a blamed thing but take people's grips when they get out of taxis or autos and hand the grips to another negro standing on the inside of the door. Looks like to me that this hotel manager should have some cotton mill experience to show him how to cut expenses.

That man is checking an old hat at the dining room door that don't look like it is worth the price of the tip he will give the girl when he comes out. Think I'll explain to him that I would save that checking a few times and buy a new hat. No, guess I won't. Don't think he would appreciate it.

I can't get some of these fellows I have been watching the last few days at all. A fellow has an old pair of shoes shined that don't look like they are worth a quarter; then he will pay ten cents for the shine and tip the boy a nickle. The gump, don't he know he could buy sufficient blacking for a quarter to shine those shoes enough times to buy two pairs if he would put a little elbow grease into it. Strange how a man will pay $8.00 or $10.00 for a pair of shoes and then pay $25.00 for having them shined, supposing they last eight to twelve months.

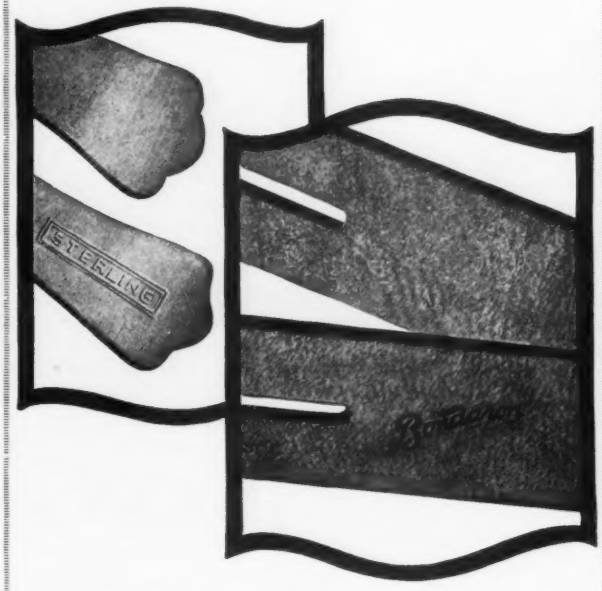
I'll tell you some more about this town next month. That Editor is wigwagging.

Line Start Induction Motors.

A line of squirrel cage induction motors for starting on full line voltage is being marketed by Allis-Chalmers Mfg. Co., Milwaukee, Wis. These motors are described as normal torque, high reactance machines which will not draw starting current in excess of the limits recommended by the N.E.L.A. They are built in ratings 7½ to 30 horsepower, 600 to 3,600 r.p.m., low voltage, and are available with either sleeve or roller bearings. A magnetic switch with push button control is the only starting equipment required.

New Screw Conveyor Book.

H. W. Caldwell & Son Co., Western Avenue, 17th & 18th St., Chicago, Ill., subsidiary of Link-Belt Co., has issued an 85-page book devoted to screw conveyors, fittings and accessories. The book is known as Book No. 989. It covers both the Caldwell Helicoid and sectional flight conveyors and gives a history of screw conveying since the Caldwell company was founded in 1874. Copies are available upon request.



They May Look Alike—But the Difference is Vast

Leaving the hair on an ordinary check strap doesn't any more make it a *Bondaron Check Strap* than the addition of a suit of clothes makes a man out of a monkey. Without the mark "Sterling" to guide them, the purchasers of silverware would be unable to distinguish the unreal from the genuine.

Plated silver looks so much like sterling silver that from the standpoint of the *appearance* there seems little to choose between them. Ordinary check straps with the hair on so closely resemble the product bearing the name "Bondaron" that to the eye one check strap may *seem* to be as good as another.

But appearances are deceiving—"all is not gold that glitters"—and the army of "just as good" merchants leaves nothing but dissatisfaction in its train. When a jewelry clerk shows you silverware you look for the name "Sterling" before you buy. When a mill supply man offers you check straps insist on seeing the name Bondaron. Unless the name is there you won't get the genuine—and if you don't get the genuine you *can't* get Bondaron service.

CHARLES Bond COMPANY

Leather Curriers and Manufacturers of Belting and Textile Leathers

617-619 Arch Street Philadelphia, Pa.

Examine Your Time-Honored Practices

EVERY business enterprise that exists long enough acquires its various traditions. Whether or not they are worthy depends on the management.

Good management looks into the traditions of its organization, especially at budget making time, and seeks to weed out those that are undesirable and thereby gain something in resources for perpetuating and strengthening those that are worth while.

The preparation and use of a well-ordered budget dictate that expenditures must be governed, not by precedent, but by necessity as indicated and explained by the aims and month to month operations of the business.

Effective *budget control* is based on Modern Accountancy and is a means through which Modern Accountancy serves the creative talents of management with the stimulus and dependable counsel of *timely* and *exact* knowledge.

ERNST & ERNST

ACCOUNTANTS AND AUDITORS—SYSTEM SERVICE

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BOSTON	ROCHESTER	KALAMAZOO	CANTON	LOUISVILLE	OMAHA	MINNEAPOLIS	HOUSTON
PROVIDENCE	PITTSBURGH	ATLANTA	COLUMBUS	HUNTINGTON	MEMPHIS	ST. PAUL	SAN ANTONIO
BALTIMORE	WHEELING	MIAMI	YOUNGSTOWN	NEW ORLEANS	DAVENPORT	INDIANAPOLIS	WACO
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ALL KINDS OF
RUBBER COVERED ROLLS
Stowe & Woodward Company
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510 Stewart Ave., S. W., Atlanta, Ga.

"*The* Size That Satisfies"

Sizing Compound "V" — TALLOW, GLYCERINE, GUMS, DEXTRINE, PRESERVATIVE, WATER

Contains no Chlorides, no Mineral Salts, and no Mineral Oil.

Sizing gums and weighting gums. . . . Our prices are right for the quality of products.

Emulso Tallow — TALLOW, WATER

The perfectly emulsified product. Contains no Gums, Acids or Alkali.

HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Using Special Hands for Cleaning in Spinning.

EDITOR COTTON:

I would like to hear from some of your readers as to their opinion on having special hands to do all the cleaning of the frames in the spinning room. How many more sides should a spinner be able to run? Not doing anything else, how many frames should a good hand be able to clean?

In connection with this question, I should be glad to know whether the readers have all of the cleaning done by special hands, or whether part of it is left on the spinner, and if so, which cleaning is done by the spinner and which by the hands?

Also in this connection, I would be glad to have them state how often each kind of cleaning is done, that is, the rolls, guides, slats, top clearers, etc., giving the numbers of yarn being run. B. T. (ALA.)

The Cost of Purchasing.

EDITOR COTTON:

The practical discussion columns of your magazine are generally given over to technical matter. The writer believes that the purchase of materials by cotton mills is getting to be of such enormous proportions that the methods of purchasing should be given close scrutiny by mill buyers. The old story of being worried by traveling salesmen is getting to the point of the mill paying high prices because they really have to be worried by the salesmen to sell them goods.

It would probably surprise many cotton mills whose goods go over the retail counter to know that a bed sheet selling for $2.00 over the counter cost 56 cents to sell by the more efficient stores. In other words when your daughter trips gaily into the town department store and condescends to buy a gingham dress, you pay that store the sum of about $1.50 just for the work in operating cost to hand that dress over to your daughter. (Check these up if you do not believe this.)

Now what has this got to do with your own purchases? It indicates what it cost just to sell goods—not to make a profit on them. When you give a salesman an order for a barrel of special oil for your top rolls about 15 cents of every dollar you spend goes to the cost of having that salesmen call on you. Mill supplies, bolts, pulleys, brooms, spools and all these staple articles cost about 20 cents out of every dollar to sell the mill. This does not mean that the salesman costs this, but it costs that much to do business in such things. The harder a thing is to sell the more it costs to sell it. This is not new to you, but the point is, the easier you make it for firms to do business with you the less you have to pay for the things. This does not mean that if you give every salesman an order without any effort on his part that you are going to get a lower price, but it does mean that our habits of doing business are costing us a whole lot of money. No one mill man can remedy it, not even two or three, yet it is a problem which concerted action would do much to help. We all get together and discuss how we can reduce waste even 1 per cent, but if we could reduce our costs of supplies in a year's time by just 1 per cent what a sum it would be!

The grocery trade has recently changed a great deal in the broad aspects of its business. How many dollars the chain grocery stores have saved mill operatives no one knows. The mill men will some day awaken to the fact that it costs them money to have a smiling "thank you" for everything they buy. It costs them money to have a salesman spend money on them. It costs them money to keep a salesman waiting in their office just to be able to do business on a personal basis.

The writer knows no definite means to change this. It does need changing if it can be changed. It may be that it involves changing human nature and some say this cannot be changed. The relation between salesmen and buyer is a subject that the finest minds are brooding over. It is certainly worth the mill men thinking about. It is worth discussing. This so-called price spread between producer and consumer is spreading more and more as our civilization becomes more complex.

CONTRIBUTOR NO. 1011.

Desires Beater Settings for Long Staples.

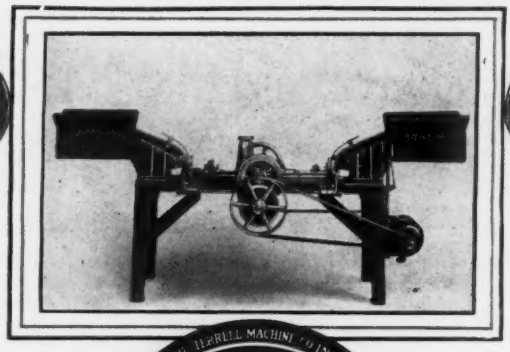
EDITOR COTTON:

I would like to have some of the readers of COTTON give their opinion as to the differences there should be in setting feed rolls to the beater in the picker, on 2-blade, Kirschner and Buckley beaters on 1 1/8, 1 1/4, 1 3/8 and 1 5/8-inch staples. In addition to this specific information, I would be glad to see any further discussion of this subject which your readers may feel inclined to furnish. C. R. (S. C.)

Overcoming Twisting in the Selvage.

EDITOR COTTON:

I have just received my copy of the January issue and note the question of "Contributor No. 3024" who asks what makes the two outside ends of the selvage twist. He says if he takes the two ends out the next two will com-



UTSMAN

When Speed Means Economy!

Here they come! 4,000 an hour---40,000 every ten hour day---or 8,000 an hour, 80,000 a day, if you wish!

Count them---if you can!

The Utsman Single End Feeler Bobbin Cleaner strips quills of all their waste at the rate of 4,000 an hour---66 a minute---more than one a second! The Double End Utsman has just twice this capacity ---more than two quills perfectly cleaned every second!

Mechanical jaws grasp each quill by the head and pull it through stripping blades which are automatically adjusted by spring tension so that each quill is perfectly cleaned---and ends are never split!

Cut your cleaning costs. Stop production tie-ups due to broken bobbins, split ends which break threads, and shortages of cleaned quills.

Save in labor, time and trouble. An Utsman saves its cost in a short time---and then starts paying big dividends on your investment.

Write today for the full details

The TERRELL MACHINE CO., Inc.

Mfrs. Termaco, Utsman, Type K, Etc., Machines.

Charlotte, N. C.

General Supply Co., Danielson, Conn.

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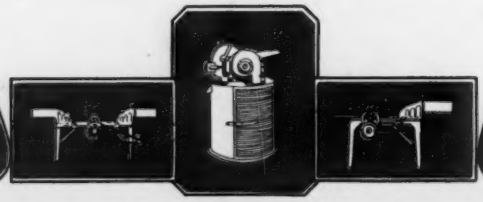

mence to twist, they then being the outside ends. If he breaks out one end it will be all right, but he wants the two ends in. He says he makes regular sheetings and puts 16 ends in the selvage, reeding them four in a dent. I would offer the following suggestions:

If he will first see that the pick cam picks on top center, set the harness cams level, with the crank shaft just past the bottom center, and see that the picker is properly parallel, I think his trouble will be over. I would be glad to know how he comes out with this problem, and hope he will tell the readers what he found to remedy it.

G. S. (N. C.)

EDITOR COTTON:

"Contributor No. 3024", in the January number of COTTON, asks the question "Why Do the Selvage Ends Twist?" If I understand just what he means about the ends twisting, it is that the ends begin to twist when they get to the harness, or by the time they get to the reeds. We had a similar trouble sometime ago and remedied it by making a little hook, similar to that of the harness strapping, and fastening it to the outer edge of the selvage, placing this thread in the hook and the other end of the hook to a strap farther out from the body of the threads near the fastenings of the lease rods. In this way it keeps this outside thread away from the other threads until it gets to, and is near the reeds, and then they don't twist.

As to *why* it twists. I have never tried to study this out, for when I find something that is working against the quality of the cloth, a remedy is about all I study particularly, for in a case like this it is not a mechanical trouble. Of course it might be that some of the threads have been re-wound, and in this case it is two reversed twists running parallel to one another. However, this is very rare, and is not likely to happen once in a hundred years, especially to any great extent, only on the selvage sides of the great density of threads for weaving. The harness going up and down, and the thread in this eye of the harness might get itself to rolling from some cause of the angle of the threads being out of line from the back to the front shade of the cloth, one higher or lower (that is from the whip roll to the *front* sand roller), pulling in an angle. Or the whip roll may not be parallel or level with the sand roller on the front that takes up the cloth. These being out of line with one another has its effect on the cloth in some manner or other.

I should like for the inquirer to let the readers of COTTON know when he finds a remedy for his difficulty, and if he does not find a remedy to write COTTON more in detail, giving all information possible about his looms, constructions of weave, etc., in order that we may be enabled to answer more intelligently.

CONTRIBUTOR NO. 14.

Introspection.

EDITOR COTTON:

Great is the man who can see his mistakes, but greater is he who tries to correct them. If you think you are right, stick to it, but if you find you are wrong, be man enough to admit it. A reasonable man is a great man, while an unreasonable man is a fool. It is great to make a good resolution, but it is greater to keep it. The mem-

Canvas baskets,
trucks,
and hampers
designed for
the textile
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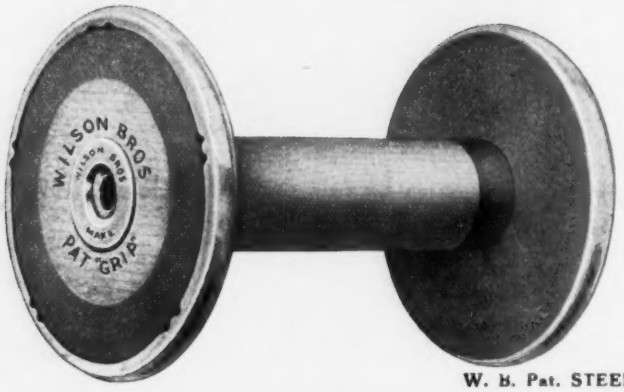

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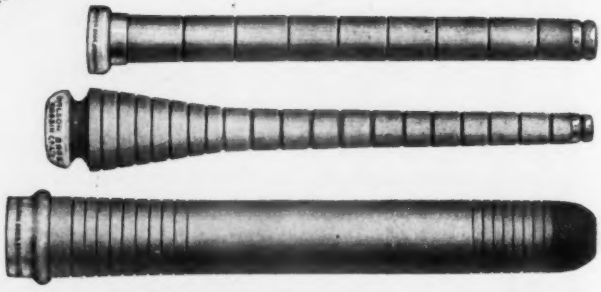

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J. T. D. (GA.)

The Preparation of Colored Warps.

EDITOR COTTON:

The preparation of colored warps has not received a great deal of discussion in the "How Other Men Manage" section of COTTON. Yet there must be many readers who have had considerable experience in this line of work.

Below I am giving the warp patterns of two pieces of colored goods. I should appreciate it greatly if any interested readers of COTTON would consider these two patterns and then write in and state just how they would prepare these warps, starting with the warping of the ball and going through each step to slashing onto the loom beam.

Cloth A.

White	10				10 — to balance on left side
Dark Blue		2		2	
Light Blue			10		

90x = total of 2170 ends.

Cloth B.

White	20								20		1		1		1	
Blue		4						4		1		1		1		6
Black				2		2										
Tan			2		2		2									

White											1		1		1	
Blue		10		4		4		10		6		1		1		1
Black	2				2				2							
Tan			4				4									

White	20								20
Blue		4						4	
Black				2		2			
Tan			2		2		2		

17x = 2108 ends
58 ends

2166 ends total

Total number of ends of each color in warp:

White	822	ends
Blue	926	ends
Black	174	ends
Tan	244	ends
	2166	ends

I shall look forward to seeing some replies to this suggestion.

CONTRIBUTOR NO. 3040.

Roll Settings for 20s Warp Yarn.

EDITOR COTTON:

In January COTTON "C.E.B.(N.C.)" asks for the best roller settings on drawing frames, slubbers, intermediates, roving frames, and spinning for making 20s yarn from full inch local cotton.

If the drawing frames are equipped with leather covered top rolls I would suggest the following settings. Between front and second rolls, $1\frac{1}{8}$ inches. Between second and third rolls $1\frac{1}{4}$ inches. Between third and back rolls $1\frac{3}{8}$ inches. If, however, the rolls are metallic, these settings should each be increased one quarter of an inch.

In general, these are the conditions which effect roller setting on all machines. Heavy sliver or roving, short drafts, heavy weights, large rolls metallic rolls, hard twist, slow speeds, and long staple require wider settings than normal. Light sliver, light roving, small rolls, long drafts, soft twist and short staple require closer setting.

For the slubber and intermediates, I would suggest the following settings. Between front and middle rolls $1\frac{1}{8}$ inches, and between middle and back rolls 1 3/16 inches. The roving frame should be set 1 1/16 inches between the front and middle rolls and 1 3/16 between the middle and back rolls.

In setting the top rolls on the roving frames, care should be taken to have them parallel with the bottom rolls, and if the slots in the cap nebs are wider than the ends of the rolls, set them so that they will drop forward rather than backward. If the rolls drop backward they will move forward the width of the gap before starting to revolve when starting up the frame. This causes a weak place in the roving. Uneven roving is also caused by too much twist in the back roving, bad top rolls and having the tension too tight.

For 20s yarn I assume that the top rolls on the spinning are weighted. I should prefer them so. If they are, the distance between the front and middle steel rolls should be as close as possible without having cockled yarn. For inch cotton this will probably be closed as tight as the stand will allow. When setting the top rolls, the front roll should be brought well forward. The proper position is best found by using a square. The blade of the square being placed under the bottom rolls with the frame extending up. The top rolls are then allowed to drop forward to the square. The middle and back top rolls are then set the same distance from the front one that the bottom steel rolls are.

A good way to find out just how far it is between the bite of two rolls is to place a piece of paper between the top and bottom rolls of the two lines and press down on the top roll. This will leave two lines on the paper the distance between which is easily measured and is the distance between the bite of the rolls.

In checking up all the points that might affect the breaking strength of the yarn, do not fail to note the condition of the bands and top rolls on the spinning frames. Slack bands make soft weak yarn; bad top rolls make cut weak yarn.

I once took hold of a spinning room where the previous manager had allowed the section men a certain number of new top rolls a week. This number was not enough and as a result, the rolls all over the room were in a wretched condition. That saving in top rolls proved to be poor economy, for by putting the rolls in good shape and giving the section men rolls enough to keep them that way we improved the quality and strength of our yarn greatly. Do not attempt to see how few rolls you can get along with, for you will surely pay the difference in a more costly way.

CONTRIBUTOR NO. 975.

EDITOR COTTON:

Replying to "C.E.B.(N.C.)" on how to increase his breaking strength. I note he has a 57-grain card sliver and a 57-grain drawing sliver, with a doubling of six on drawing which gives him a draft of six.

Without changing any gears on drawing, let him take six cans of finished drawing and run through the drawing frame; take the cans that have been run through the drawing twice and have this work run through the slubber, intermediate and jack, keeping it separate. Now run it through the spinning frame. Don't change a draft gear all the way through. Break this yarn and note the result.

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Then another experiment. Try setting the feed plate at 17 and follow that all the way through to spinning. If full inch cotton is being used you should get standard break and then some. It will be found by going over the settings of the cards that you can pick up a few extra pounds.

I am taking it for granted that this contributor is not compelled to crowd his cards. If he keeps in touch with tests made by members of the Arkwrights he will find that better breaking is produced by light carding and proper setting of the feed plate. O. T. (N. C.)

EDITOR COTTON:

In the January issue of COTTON, in the "How Other Men Manage" department, "C.E.B.(N.C.)" has asked for the best roll settings for the best breaking strength.

I should like to say just a few words in regard to breaking strength. I think this contributor's draft layout is ideal, and with one inch staple cotton and the proper roller setting, his 20s yarn ought to break from 90 to 95 pounds. I will give here a few of the important things pertaining to breaking strength.

First, the finisher lap should be free from thick and thin places. The beater speed should not exceed 900 r.p.m. I take it for granted that "C.E.B." has good preparatory machinery to do the opening and cleaning. In hauling and handling the finished laps from lappers to cards, care should be taken not to tear them, for each hole in the lap makes a thin place in the sliver.

The first thing we notice on a card for breaking strength is the feed plate. The nose on the feed plate should be perfectly straight. If the feed plate is worn off in the middle it will not feed regularly and will cause thick and thin places. If the licker-in is in good shape, the feed plate should be set to the licker-in 12/1000 inch, being sure it is 12/1000 inch from one side to the other side. This is for a 13-ounce lap.

The next important place on a card to look for breaking strength is the back plate—some men call them breaking plates. The back plate is set to the cylinder just above the licker-in and serves to hold back lumps which get through the licker-in. The bottom edge should be perfectly straight and set to the cylinder to a 12/1000 inch, and the top edge to the cylinder to 22/1000 inch.

If the card is in good mechanical condition, and all other parts are set to standard, speaking from my own experience, the card will give good results. The roller setting I am giving I have found to be very satisfactory, provided the diameter of the rolls will permit the setting.

Drawing: first to second roll 1 1/4-inch; second to third roll 1 5/8-inch; third to fourth roll 1 7/8-inch.

Slubbers: first to second roll 1 1/4-inch; second to third 1 1/2-inch.

Intermediate: first to second roll 1 1/4-inch; second to third roll 1 5/8-inch.

Speeders: First to second roll 1 3/16-inch; second to third 1 5/8-inch.

Spinning: first to second 1 1/16-inch.

B. H. (GA.)

EDITOR COTTON:

This is in response to the inquiry of "C.E.B.(N.C.)" who asked for suggestions as to roller settings for 20s warp yarn made from full inch cotton with the sliver and roving weights given in his letter as published in the January number of COTTON.

We are making this number regularly out of this cotton, and I am pleased to give you below our settings for this work:

Drawing			
Back to 3rd	1	9/16	inches
Third to 2nd	1	17/16	inches
Second to 1st	1	15/16	inches
Slubber			
Back to middle	1	1/2	inches
Middle to front	1	1/4	inches
Intermediates			
Back to middle	1	1/2	inches
Middle to front	1	1/8	inches
Speeder			
Back to middle	1	1/2	inches
Middle to front	1	1/8	inches
Spinning			
Back to middle	1	1/4	inches
Middle to front	1	1/16	inches

T. W. (GA.)

EDITOR COTTON:

In the January issue of COTTON "C.E.B.(N.C.)" asks the question "How Can the Breaking Strength be Improved?" And he wants suggestions on roll settings. The roll settings are practically all the same, the world over, that is, you set the centers of the rolls from the centers, to exceed the length of the fibers, say about 1/16 of an inch or 1/8 of an inch. This covers any variation of the fibers as a general rule, so we don't bother any more about it, at least to any great extent.

We have a little side line on this number of yarn, and this is the way we run it:

11-ounce lap, 47-grain card sliver, 7 doublings at the back of the drawing frames, both coarse and fine drawings. We regulate our drafts between the drawing slivers and the jacks, so as to make them come out 4.00-hank roving. We then double the roving on the spinning frames for 20s yarns and get up into the 90s on our breaking strength, using the standard twist, or nearly so on the jacks, and on the spinning.

And, by the way, last November we put in a long draft spinning frame as a sample, and find that we can run 7/8 to an inch staple and get stronger yarn on our No. 30s yarn than we were getting on the shorter drafts from graded one-inch middling cotton, using this cotton that we formerly used on our 20s yarn. This experiment is still on. The ends down per frame per day is slightly better and the roll speed is 5 per cent more than on the higher grade cotton, using the old short draft on the frames.

But this is getting away from the main question under consideration. The main thing in "C.E.B.'s" case that he is doing too much drafting on the spinning frames. He should be using a 4.00-hank roving instead of a 3.70.

T. A. D. (GA.)

Spinners Meeting Date Changed.

The date of the Spinning Division meeting of the Southern Textile Association, Lake Lure, N. C., has been changed from May 16th to May 23rd, it is announced by J. M. Gregg, secretary.

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Use of Portable Drills in Cotton Mills.

EDITOR COTTON:

The portable electrical drill is one of the most useful tools in the mill. It permits many repairs to be made without carrying the parts to be worked on to the machine shop. In this field may be mentioned the drilling of holes to allow parts to be spliced as a temporary repair. A broken frame may be repaired in this manner and the repaired part be used without even stopping the frame but for a short period of time. For example the writer saw a hopper repaired recently in about one hour's time. This hopper had the usual cast iron sides. In moving in a new machine into the room it was allowed to fall heavily against the hopper and crack the side. This cracked side fell into the hopper and left such a large hole that the machine had to be stopped. This immediately reduced the production of the picker room one-third. The portable electrical drill was called into play and the broken part was drilled in several places to permit 3/8-inch bolts to be passed through a spliced piece of flat iron. The splices were placed on the piece on three sides and bolted together to the main frame of the hopper. This held the broken side in place and with the exception of the bolt heads left the inside of the hopper perfectly smooth. The job was done rapidly and did not cause a loss of production of sufficient volume as to cause the mill to lose any at the end of the week, for the laps ahead took care of the hopper out of commission until the side could be repaired.

Such repairs as the foregoing are most conveniently made with the portable electrical drill, but there are many jobs in which the electrical drill is used and no other manner of drilling the holes can be used. This use of the drill is in putting holes in close quarters or at such an angle as to make it impossible to get the work in position in the drill press. New set screw holes in the ends of lickers-in and beaters calls on the electrical drill for results. These set screw holes are often placed at an angle with the shaft line and the portable drill is by far the best to handle this work.

While the drill is usually thought of for metal drilling, it may be used to advantage in wood. A new line of shafting was recently hung and the portable drill used for the lag screw holes in the wooden beams. For drilling new wooden slats to be placed on picker aprons the portable drill will save time. As a matter of fact many carpenter shops are overlooking this device in many phases of their work.

S. B. R. (GA.)

Wants Remedy for Curled and Twisted Cotton.

EDITOR COTTON:

I am troubled with cotton not being properly opened when it gets to the cards. I use 1 1/16-inch Strict Middling, Middling and Strict Low, equal mixtures, all compressed bales. I have a hopper feeder into two vertical openers in tandem, the first one running 525 r.p.m., and the second 375 r.p.m. The second was 525 r.p.m. also but we cut it down.

My cotton curls in the vertical opener, balls up and seems to be slightly twisted into stringy pieces. It does not have the fluff and bloom it should. My blades are

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set 1 inch from the grid bars in the vertical openers.

The cotton is then pulled by fan 400 to 500 feet to the picker room, and is fed by a distributor into a breaker hopper with a Buckley beater and a three-blade beater (two-beater breaker). Then we have the finisher picker with three blades. My Buckley is set ⅜-inch from the rolls and runs 800 r.p.m. The other blade beaters run 800 r.p.m. also, and the fans 1,000 r.p.m., which gives just enough draft to carry the cotton on the screens.

The blade beaters are set to the feed rolls 3/16-inch, and ⅛-inch to the cut-off plates. The laps are not open and uniform throughout. They weigh very good, yard for yard, but the cotton in the laps seems to be in bunches and slightly curled masses instead of smooth, even and uniformly opened. The laps weigh 13 ounces per yard and make a 48-grain card sliver.

Any suggestions your readers can give will be appreciated.

CONTRIBUTOR NO. 3056.

Initiative in the Mill.

EDITOR COTTON:

Elbert Hubbard says, "The world bestows its big prizes, both money and honors, for but one thing. And that is *Initiative*. What is Initiative? I'll tell you: It is doing the right thing without being told."

How can we apply this to our cotton mill? Doesn't it mean correct the fault before the customer complains?

Elbert Hubbard continues, "But next to doing the thing without being told is to do it when you are told once."

In other words when the complaint does come in do you throw it in the waste basket and trust to luck the thing will right itself? Or do you dig in and find the trouble?

To illustrate: We recently had a complaint of slack ends in some chain warps we had made. The customer stated he could not use the warps and please to rush him replacements. We looked over the warper but finding nothing obviously wrong quickly got out the replacements and forgot the matter. Word came back that these too contained slack ends and were unusable. The customer was in trouble. His looms were stopping for lack of warps and his deliveries were getting behind. Again we looked over our warper finding nothing. We wrote the customer that the trouble must surely be at his end. This brought the reply that we better come and see just what the conditions were for ourselves. The trip was made at considerable expense to us only to find that we were undoubtedly at fault. We hastened back to our warper when a third careful inspection revealed the trouble.

Clearly we lacked Initiative on this job, and to quote further, "Next, there are those who do the right thing only when necessity kicks them from behind, and these get indifference instead of honors, and a pittance for pay." We got our kick all right and are trying to benefit by our experience by showing some Initiative lest indifference and the pittance follow.

All this brings us to the point: Just what are you doing to kill complaints before they come in? Are you showing some Initiative?

The mill is running smoothly. Yarn looks and sells well. Production has picked up. Costs are down. With such conditions it is easy to sit in the office and let things run. Surely a pleasure to go through such a plant. But let us do so.

As we enter the card room the card tender is cleaning off his cards with vigorous sweeps of a large mop. Bunches of lint are flying about, many dropping in the web. As it is a carded yarn mill the cotton has received its last cleaning as this web coils itself in the can. Initiative shows the card tender his mistake and sees to it that this practice is stopped. The result? The complaint some customer was about to send through does not come. The "kick from behind" fails to materialize.

Passing the drawing frames we find one running with an end broken back. The spoon has not tipped up and stopped the machine. The Initiative calls the carder and has a session on singlings—throwing in a few points about doublings while he is at it. That complaint on uneven yarn never comes in.

On through the spinning room we find a sweeper thoughtlessly fanning the lint out of the windows swinging his broom around over his head and incidentally over the spinning frames. The lint settles not on the floor as he expected but on the frames and into the ends. Initiative halts this rascal and demonstrates the proper way to clean windows with a piece of damp waste.

And so we continue our inspection of the plant and wherever we find a fault, Initiative calls together those responsible and has a session. Small wonder this mill runs smoothly with Initiative on the job.

I would like to hear from some of the other superintendents on this subject. The question is: In going through your plant daily just what do you look for at each process or machine that could cause bad work and hence complaints? Also what thing did you find that you were not looking for? I am sure a list of these pointers will help the rest of us in finding our weak points.

For remember the dire warning Hubbard gives us in concluding his description of Initiative, "Then, still lower down the scale than this we have the fellow who will not do the right thing, even when someone goes along to show him how and stays to see that he does it: he is always out of a job and receives the contempt he deserves, unless he has a rich Pa, in which case Destiny patiently awaits around the corner with a stuffed club. To which class do you belong?"

M. A. (S. C.)

Doubling and Drafting Combed Yarns.

EDITOR COTTON:

The calculations that have been given in my previous letters should suffice to show clearly the opportunities for the profitable manipulation of weight, doublings and draft to one who familiarizes himself with the calculations for a complete lay-out. By using the rules shown the desired results are arrived at in a much more intelligent manner than would be possible when using cut-and-try methods.

It must be understood, however, that in actual practice these figured drafts must be modified slightly in order to balance production between the various processes, and also to keep the numbers within the proper limits of variation.

While the calculations previously given serve very well for a lay-out based on carded yarns, they must be modified to a slight extent when dealing with combed yarns.

When considering combed yarns, we must necessarily be limited to a certain number of grains, depending on the style of machine used, the width of the lap fed in and the

stock to be run. Therefore, when we wish to plan a lay-out for combed work, we must first decide what is the proper weight of the lap to feed in at the back of the comber. Below is a fair range of lap weights in grains for various types of combers.

Old style combers:

8.75-inch lap	240 grains on long staple
	325 grains on short staple
10.5-inch	275 grains on long staple
	375 grains on short staple

Whitin high speed:

12-inch lap	400 grains on long staple
	500 grains on short staple

Nasmith:

10.5-inch lap	450 grains on long staple
	650 grains on short staple

Tunstall:

10.5-inch lap	500 grains on long staple
	650 grains on short staple

We will take the following example to bring out the modifications necessary for a lay-out on combed work.

What weights and drafts are required for a 50s combed yarn, using four processes of roving, from a 12 ounce lap at the back of the card, making an allowance of 5 per cent waste at the card and 15 per cent waste from the comber, doubling 16 ends at the sliver lapper, six at the ribbon lapper, six at the comber, six on two processes of drawing, and two ends up on the intermediate, roving, jack and spinning frames.

Combed lap to be about 300 grains.

$$\frac{7000 \times 12}{16} = 5250 \text{ grain lap at the back of the card.}$$

$$\frac{8.333}{5250} = .00158 \text{ hank lap at the back of the card.}$$

$$\frac{50 \times 16 \times 6 \times 6 \times 6 \times 6 \times 2 \times 2 \times 2 \times 2 \times .80}{.00158} = 8{,}399{,}392{,}405 \text{ total draft required.}$$

$$\frac{5250 \times 16 \times 6 \times .95}{300} = 1596 \text{ total draft to comber.}$$

$100 \times 2.5 \times 6 = 1500$ trial draft to comber.

$$\frac{1596}{1500} = 1.065 \text{ increase of draft required.}$$

This increase will be placed on the ribbon lapper.

$1.065 \times 6 = 6.39$ draft to use on the ribbon lapper.

The total draft to the comber is arrived at by multiplying the weight of the card lap in grains per yard, by the doublings on the sliver lapper and ribbon lapper, less the per cent of waste allowed at the card, and dividing this by the weight in grains of one yard of lap to be fed in at the back of the comber. As before stated, the weight of the lap to be fed in at the back of the comber, must be decided upon to suit the type of the machine, width of lap, and staple of the cotton to be run.

The trial draft to the back of the comber is found by multiplying the draft used on the card, by the drafts used on the sliver lapper and the ribbon lapper. The balance of the calculations necessary are identical to those used previously for carded yarns.

$$100 \times 2.5 \times 6.39 \times 30 \times 6 \times 6 \times 4 \times 4.5 \times 5 \times 6 \times 9 = 8{,}371{,}836{,}000$$

$$\frac{8{,}399{,}392{,}405}{8{,}371{,}836{,}000} = 1.003 \text{ draft to increase.}$$

The increase necessary would be placed on the spinning frame.

$1.003 \times 9 = 9.027$ draft to use at the spinning.

$$\frac{5250 \times .95}{100} = 49.875 \text{ or } 50 \text{ grain sliver from the card.}$$

$$\frac{50 \times 16}{2.5} = 320 \text{ grains sliver from the sliver lapper.}$$

$$\frac{320 \times 6}{6.39} = 300 \text{ grain lap from the ribbon lapper.}$$

$$\frac{300 \times 6 \times .85}{30} = 51 \text{ grain sliver from the comber.}$$

$$\frac{51 \times 6}{6} = 51 \text{ grain sliver from the first and second drawing.}$$

$$\frac{8.333}{51} = .1633 \text{ hank sliver from the second drawing.}$$

$.1633 \times 4 = .6532$ hank roving from the slubber.

$$\frac{.6532 \times 4.5}{2} = 1.4697 \text{ hank roving from 1st intermediate.}$$

$$\frac{1.4697 \times 5}{2} = 3.6742 \text{ hank roving from 2nd intermediate}$$

$$\frac{3.6742 \times 6}{2} = 11.022 \text{ hank roving from jack frame.}$$

$$\frac{11.022 \times 9.027}{2} = 49.747 \text{ counts from the spinning spindle.}$$

C. C. (MASS.)

Another Suggestion for Preventing Static.

EDITOR COTTON:

I note that "E. D. (N. H.)" desires a remedy for static, and in looking through my note book I came across the following notes which I had copied from one of Cramer's booklets on humidity:

"After bleaching or dyeing, the condition of the fiber is, in some respects, radically different from that of raw cotton. The natural oil and wax have been largely removed. Unless the cotton is specially treated, picking and carding become difficult even under atmospheric conditions which would be favorable to gray cotton.

"The introduction of a solution of Glauber's Salt into the bleached or dyed cotton renders it more workable by increasing its tendency to absorb and retain moisture. It is important that the solution should be uniformly distributed. The spray should be sufficiently heavy to be immediately deposited, but fine enough to favor rapid absorption.

"This is accomplished by mounting directly atomizers which continuously deposit a spray of the salt solution upon the picker laps. A special valve mechanism should be connected with the stop motion of the pickers so that the spray will cease whenever the machines stop. Mixing tanks and the piping system to the atomizers should be ar-

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ranged with special care to prevent precipitated salt in the system and in the atomizers themselves."

I trust that this may be of some benefit to your subscriber. R. I. G. (MASS.)

Figuring Trumpet Bore Sizes.

EDITOR COTTON:

In the January number "G.N." asked for methods for determining the proper size bore for card and drawing frame trumpets, and also for the correct size to use for the .68-grain drawing sliver.

Sometime ago we had occasion to renew all of our trumpets, and we adopted a 9/64-inch trumpet for a 65-grain sliver. The method we used was to bore out all of the trumpets and ream them with a 9/64-inch tapered reamer, or No. 1 reamer. We arrived at this size bore after experimenting with those large and smaller, and found that this gives us the best results in condensing this size sliver.

With the reference to card trumpets, I will say that "G.N." can take the same reamer and run it into the card trumpet a little bit further, which will give him a slightly larger hole than that on his drawing frame, and I have found this to be the best arrangement.

N. T. (GA.)

EDITOR COTTON:

I noticed the discussion started in COTTON with reference to the proper size of bore for trumpets on cards and drawing frames. I have not been able to find any given rule which is practical, and in my experience I have found it very hard even to use the same bore on all trumpets on the same weight sliver. This is nearer possible on cards than on drawing frames and the only rule which I could give would be the rule of good judgment.

As to the density of the sliver, it should be made so it will not stretch and yet not be so dense as to be hard to draw and cause uneven work on the drawing frame, preferring only enough compactness to prevent stretching. On the drawing frame, slightly worn calendar rolls, also collars on the metallic rolls, will vary the tension, and where these conditions exist we prefer a variation in the size of trumpet bores and of uneven tension on the ends rather than a standard bore, with some too tight and some too slack.

J. O. (S. C.)

EDITOR COTTON:

I notice the inquiry from one of your subscribers as to the proper size of hole or bore for drawing frame trumpets.

The best method of maintaining a proper trumpet hole is to buy trumpets with the smallest holes which can be obtained, and ream this hole to the very smallest size through which the sliver will operate properly. As the hole wears larger, the trumpets should be replaced.

I have found that in this way I can always obtain the maximum of efficiency from the trumpets, and also be sure that no bad sliver gets by the trumpets. I prefer this method to that of following the recommendations of the manufacturers as to the sizes of trumpets, because I have found this to be unsatisfactory when running various staples of cotton. It is obvious that with the same weight of sliver on the drawing, a different size of hole will be required for staple cotton than is required for the shorter lengths.

M. B. (GA.)

EDITOR COTTON:

Referring to the inquiry of "G.N.(Ga.)" concerning the size bore for trumpets on the cards and drawing frames, will say, I do not know of any standard other than the machine builders put out.

In looking through my memorandum files, I notice that some time back I worked out, or copied from someone else, workings on the size of these trumpets. How some of these figures were arrived at I do not know, although the rules are here. I would not at this time care to put these before the readers of COTTON, because I am unable to explain the exact process by which they are figured out, but I am going to give the results of this figuring:

	49-grain sliver	64-grain sliver	81-grain sliver	100-grain sliver	
Cards	10/64 diameter	11/64 diameter	13/64 diameter	14/64 diam.	drill
1st drawing.	8/64 diameter	9/64 diameter	10/64 diameter	11/64 diam.	drill
2nd drawing.	7/64 diameter	8/64 diameter	9/10 diameter	10/64 diam.	drill
3rd drawing.	6/64 diameter	7/64 diameter	8/64 diameter	9/64 diam.	drill

These rules worked for me, although you know a fellow who stays in one place a good time has but little changing to do, and when he does, he has formed a standard. When he orders new trumpets he specifies the grain sliver per yard to the builders and they have them bored for him, ready to put in when they arrive, and if there is anything further to do it is some little smoothing up of these holes by polishing.

To my mind, the main idea of a trumpet is to condense the slivers in a natural way without stretching the strand—that is hard to determine. There are as many ways of doing this as there are carders. I am usually governed by the tensions and the density of the slivers which come through in a room with the right degree of humidity.

Speaking of humidity, this is another question that is widely discussed? What is the right degree of relative humidity. In my opinion, this is determined by many different things; the kind of cotton; the condition of the machinery; existing conditions in different localities; arrangement of the machinery, or the different weights going through the machines in any one department. The humidity has to be regulated to average both numbers of rovings going through the department, to get the best production. What I mean by the best production is, the most of it, and the best of it; or, as my boss told me one time, "a leetle bit more and a leetle bit better."

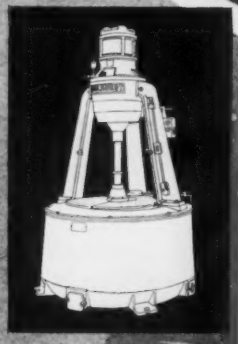
I wish I knew more about this subject to tell "G.N.", but I do not at this time, but later on if I find anything I will surely let it be known.

T. A. D. (GA.)

EDITOR COTTON:

The writer, in some of his contributions to this department, used the term "art of drafting." "G. N. (Ga.)" by his question, is asking for the definition of this term—unconsciously, perhaps.

The size of bore of a trumpet on cards or drawing frames is governed by this art. The action is similar to that of the distance between the eye of the presser and surface of the bobbin on fly frames. As I have before



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stated, if a high grade stock is used, the strand at this point is stronger than the increasing diameter of the bobbin. In other words, the strand is strong enough to hold the relationship between the cones and flyers. That is why the work runs well.

On the other hand, in case of weak and dirty stock, the eye of the presser pad often clogs, and besides, the strand being too weak to hold conditions equal, the strand snaps, and the result is bad running work.

The right amount of draft will help here the same as on the card and drawing. In order to save space, I will discuss the drawing frame only. The bore in the trumpet for a 68-grain sliver should be 3/32-inch for good stock, say not under 1⅛-inch American cotton.

To determine the proper size bore is not an easy matter. I employ the following method. I run only one delivery. (1) I make sure that there is no overdrafting between the first and second drawing rolls. Overdrafting at this point will cause too much tension on the web. (2) Excessive drafting will cause slack, because this reduces the number of fibers in the cross-section of the strand. However, when common rolls are used, frictioning contact causes a certain amount of retardation. Therefore, with the foregoing in mind, for a 68-grain sliver and running good stock, use a trumpet with a bore slightly over ⅛-inch, and if the stock will run through without breaking, next give attention to the tension of the web. A small bore will cause a slack web, then, as stated, use the smallest bore possible. Then change the calender roll gear.

If a change of one tooth on the calender roll gear will cause too much tension on the web, place back the calender roll gear, and instead make the bore in the trumpet slightly larger so as to take up the slack. In the case of poor, dirty stock, it is better to run a larger bore in the trumpet, running the calender roll at a slower speed to cause less tension on the web. When this one delivery is perfect, then all the trumpets should be bored the same.

Please be reminded that, as on the fly frames, any retardation of the front drawing roll will cause an increased tension on the strand or web, which I brand as the greatest evil in all cotton mills. The writer has two sets of trumpets, using the smaller bore for strong wiry cotton and the larger bore for fluffy, dirty cotton.

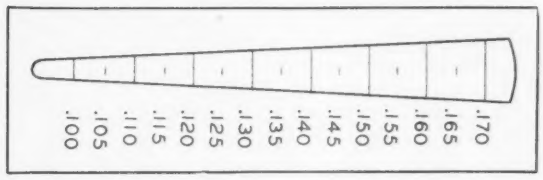
From the foregoing, it can be deduced that drafting is an art, and the master of this art is one who will arrange, or can arrange, the drafts so as not to destroy the gradual draft between the drawing rolls by a tight tension from the front rolls to the calender rolls or the surface of the bobbin. This it is that causes thin places in the strand and roving.

WASH (R. I.)

EDITOR COTTON:

With reference to the inquiry of "G.N.(Ga.)" who wanted to know the best way to determine the exact size desired for card and drawing frame trumpets, and he asked specifically for recommendations of bores for the 68-grain sliver. We have found that the best way to determine the proper size of trumpet is to check one whose diameter is smaller than could be run with the given sliver, and then increase by 5/1000ths of an inch at a time, until the correct diameter is found at which the sliver will run through.

A gauge for determining the bore may be purchased



from any mill supply house, and resembles the sketch in the accompanying drawing.

For "G.N.'s" sliver, I should suggest that he would need on his cards a bore in his trumpets of about .19 .o .195 inches.

R.S.(S.C.)

Some Questions on Cork Rolls.

EDITOR COTTON:

I want to ask some questions of those readers of COTTON who are using cork rolls in spinning on numbers as fine as 26s to 30s. Does the work run any better or worse? Have they paid any attention to the top roller waste, and is it more or less? Does the yarn have smaller particles of waste in it, such as clearer waste is composed of? How close should the rolls be set, when running 30s warp with a draft of 12.30, from 15/16-inch cotton?

O. T. E. (N. C.)

Cop Waste.

EDITOR COTTON:

One of the most serious forms of waste the manufacturer has to contend with in a cotton mill is in the form of cop waste. Many mills running cop filling, being unable to hold this waste down to a low percentage, are rewinding the cops onto filling bobbins. This means a large sum of money to spend, for mills that have no winding machines, and it is a question whether there is a saving after the cost of rewinding is added to the cost of the mule spinning. One thing is certain, and that is that where a mill is making 5 or 6 per cent cop waste, the other 95 or 94 per cent generally gets into the cloth at the cost of the mule spinning. On the other hand, where winders are used to rewind the cops onto the bobbins, the whole 100 per cent must be rewound to save the 5 per cent waste made without rewinding.

Naturally the overseer of the weave room is held responsible for this cop waste, and there is always friction between him and the mule room overseer as to who should be held responsible for certain parts of this waste. Personally, I think both of them can do much to eliminate a large part of this waste by educating their help to handle this form of filling more carefully.

Suppose we pay a visit to the overseer of the weave room to talk about this waste, and to listen to his views, as to what he thinks about cop waste that is made in his room. The first question we will ask him will be about the large amount of waste he is making, and the answer we may expect to get will be something like this:

"Oh, yes, the waste is excessive, but it is that way in every mill where they use cop filling, and I am not making any more waste than was made last quarter or last year."

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And the reply will generally be: "Yes, we are doing all we can to stop it, but you know we do not spin this filling and we can't help it if the mule room sends the filling to us in poor condition."

Continuing, he will tell us that the weavers of today are not used to the handling of this filling and that is why there are so many cops stuffed or broken, the result of which is waste. He will probably tell us that the spindles are not the right size, and as soon as he gets the spindles he wants he will cut down the waste. This is a condition that exists in every weave room that uses cop filling and he can see no other way of stopping it.

Suppose we spend a few moments in going over his answers to see if we can find anything that will uphold him in making the waste. In the first answer to one question he claims he is not making any more waste than was made in other mills. Now I think that is a poor answer to give, as to what waste was made in other years and in other mills has nothing to do with the present time. To the next question, we would say that while many weavers are not familiar with handling cops, it must be remembered that they have put 95 per cent of the filling into cloth, and surely after doing this for weeks and months, they must acquire some experience in this line. Of course, some weavers are more skillful than others in handling cop filling, and when they do stuff a cop they will pull out the tube and the part of the cop that is stuffed and in this way be able to save quite a lot of the cop and get it into cloth. Other weavers will not have the patience to do this or will not trouble themselves about it, but will pull the cop off and throw it back into the box again, to be picked up later and thrown back into the box. After a few times, the weaver will break this cop so as not to be bothered with it any more. This is not an exaggeration, but it is a condition that is going on daily in mills using cop filling.

Suppose we have a talk with the weaver, and hear that side of it. Will they tell us why there is so much waste made? Of course they will. They will tell us they never saw such filling; the cops are soft and are stuffed before they put them on the shuttle and how can we expect them to put on cops that come to them in that condition. We notice while talking to the weaver one of the looms stopped, and in taking out the shuttle, we find the cop broken in two.

"See," explains the weaver, "that is what I have to put up with; that loom needs fixing; it has too much power in driving the shuttle across."

As we are talking to the weaver and looking at the broken cop, the loom fixer comes along to see what the trouble is, and his answer will be:

"Well, if there is too much power on that loom, why doesn't it break every cop put in the shuttle, instead of a few now and then."

This seems to be a logical answer, but it doesn't stop the cops from breaking, and we decide to try and find the trouble ourselves. We pick up a few of the cops and hold them to the light, and we are surprised to find that we can see right through the cop, thus proving that they are not stuffed. In looking over others, we find the end of the cop turned as if it were striking against the filling box at some time or other. We give this cop to the weaver and ask to have it put on the spindle. We notice how the weaver has to twist and push to get the cop on. Upon investigating this, we find that the spindle is too large in diameter for the opening in the cop, and so we decide that we have found one cause of the weaver stuffing the cops, and sometimes breaking them.

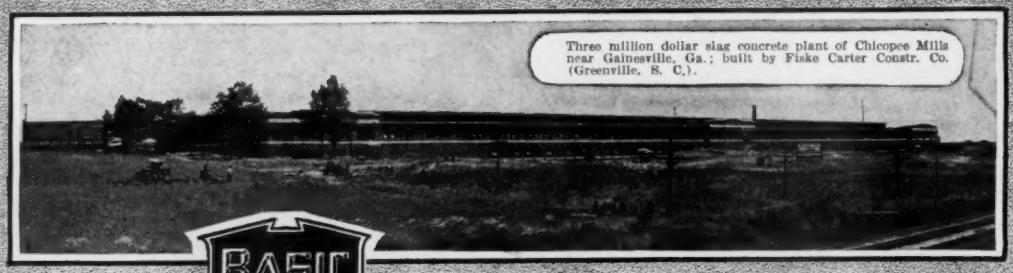
After the cop is on the spindle, the weaver shows us the top of the cop that has been bent over and we are surprised to see the amount of waste that has to be taken off before the end is free on the spindle, and here is a second cause of cop waste. Before putting the shuttle in the loom we ask the weaver to let us look at it again, and at first glance it seems all right, but as we look again, we notice a soft place in the center of the cop, as though the end was broken and before the mule spinner got around to piece it up, the builder on the mule had moved up a little, enough to make a break in the cop, hardly noticeable, but enough to weaken the cop so that the force of the shuttle in striking back and forth against the picker, was likely to break it and we decided we had found a third place where waste was made.

Meanwhile, the loom fixer had been looking on with a smile, as if to say, "Didn't I tell you so." That decided us to look into his side of the question, so we turned the loom to top center or to the full force of the pick, and we were surprised to find the picking stick went right to the end of the groove in the lay of the loom; in fact, it seemed to bind against the lay. On closer inspection, we found that there wasn't any bumper in the loom; that there was no play in the lug and the strap that held the lug strap to the picking stick was much higher than it should have been, everything pointing to the fact that there *was* too much power on the loom.

We next looked at the pick cam and found that it had been moved in about ½ or ¾ of an inch in from the end of the picking ball. Calling the loom fixer's attention to these things, the smile faded from his face, for he knew that we were right and we checked down place number four, where the waste was being made.

Next, we decided to visit the steam chest, or the place where the cops are steamed to hold the twist in the filling, and here we found the filling man in putting the filling in the chest sometimes knocked the cops against the side of the box, and we decided that this was one of the causes of the ends being turned on the cops we saw in the weave room. In examining the steam chest, we found that the steam collected on the ceiling and formed large drops of water which dropped down on the filling, staining the cops with the dust and grime that had settled on the brick ceiling of the steam chest, and again we had found another source of waste, for the stain seemed to be backed into the cops, thus making them useless for weaving purposes. Asking the filling man what he was going to do with these cops, he replied that he usually made waste out of them by breaking them. We decided that this was a condition that needed attending to at once.

In passing through the mule room, we noticed the empty boxes of tubes being returned from the weave room, and upon investigating, found that among the empty tubes were many pieces of cops with about one to one and a half inches of yarn on them. Calling the attention of the mule room overseer to this, he told us that this was an every day condition, and admitted that it was a serious matter, but what could he do about it, for he was not running the weave room and could not weave it up in the mule room. Again we made a note of this, so as to have it corrected later when we went back to the weave room. Continuing



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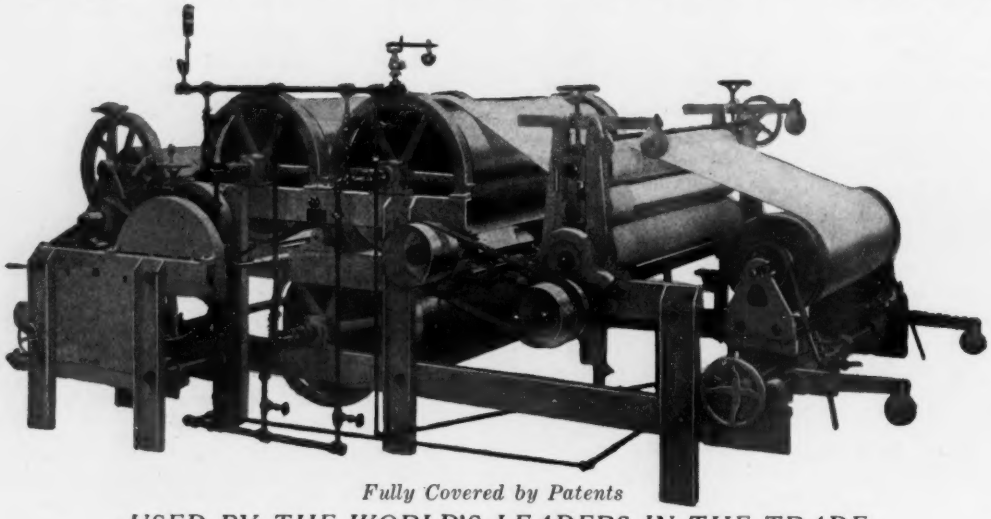

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our journey through the mule room, we noticed one of the back boys cleaning the mules with cop waste, and after watching a while, saw him take a handful of good cops and pull them into waste, to clean with.

Now, with all the waste made in the weave room and steam chest, we thought it funny that they had to make waste out of good filling to clean with, instead of getting the waste from the weave room, where there was plenty of it. Continuing our journey through the mule room, we noticed one of the spinners taking the cops off the spindle or in other words, doffing the cops. It was apparent that if the spinner were not careful, he could do much damage to the cops, by bending them and perhaps breaking them. In talking things over with the overseer, he promised to attend to the things we found making waste in his room. We left the mule room, and as we could think of no other place where cop waste could be made, we decided we had found enough places, so that if we could remedy them we would be stopping a great deal of the waste that was being made.

So it can readily be seen that while the cop waste situation in a mill is a serious thing; much of it can be stopped. In the weave room, especially, there are places which we found making waste that can be eliminated and the overseer and second hand, loom fixer, weavers and even the filling man should do their part in eliminating it. The overseer in following up this waste should be careful in the method he uses when dealing with the weavers, for if the weavers think that they will be discharged for making waste, they will take it out with them or in some other way destroy it, so that the mill, besides making the waste, will also lose the waste, making a double loss.

If a mill has a winding machine, I think that if the stuffed cops and broken cops were saved and collected, it would pay the mill to rewind it onto bobbins. The money saved between waste and getting it into cloth even with the cost of rewinding added, would be worth doing.

In closing this letter, I would like to ask if some overseers would give some of their views on this waste and the methods they have used to overcome it. I would also like to know if conditions like I have written about exist in every mill using cop filling. At the same time I would like to have them point out to me any other place where I could find waste made and how to eliminate it. Perhaps some loom fixer could give me a few points on what he thinks about the cops breaking and in his opinion whether it is a case of too much power or if it is the condition of the cop as it comes from the mule room .

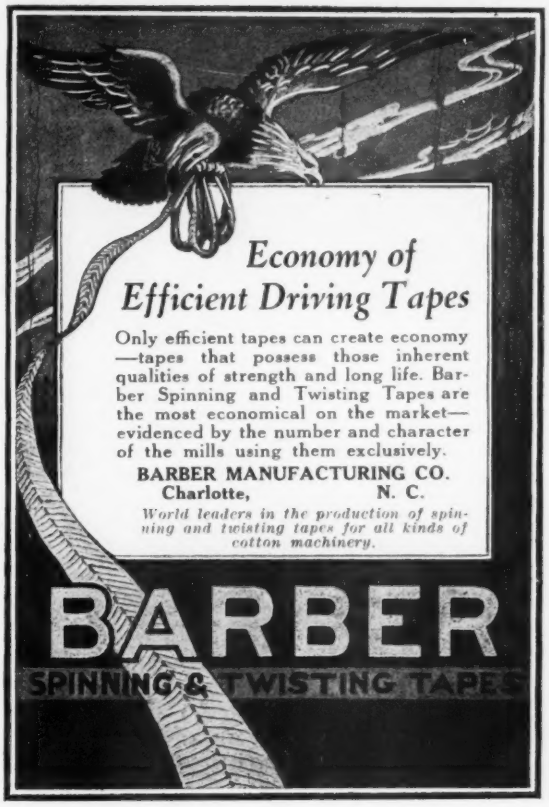
CONTRIBUTOR No. 937.

Further Fly Frame Discussion.

EDITOR COTTON:

I have always understood this section of COTTON to be a valuable medium whereby we cotton mill fellows could secure various items of knowledge from other men from time to time concerning the many problems which arise occasionally, and not as a means whereby one fellow can show his ability as a good questioner, or examiner.

Coming to the point at once, I would like to know in what issue of this journal has our friend "Wash (R. I.)" explained any of his fly frame problems, theories, etc., and proved same satisfactorily to all concerned? In most of this writer's letters I have noticed he tells us what can be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GIBBONS G. SLAUGHTER, Johnston Bldg., Charlotte, N. C.

done by this or that calculation, but that seems to be the limit. Then, of course, we have the usual questions. However, it is gratifying to know that this contributor does agree, sometimes, even with one who is claimed to be wrong most of the time.

Now "Wash" would like to know in which issues of COTTON his questions have been answered. Well, I would ask him to look up recent issues and he will find very able answers given by our friends "G. C. R. (Mass.)," "T. A. A. (S. C.)" and two or three others. However, it seems to me that if we just agree with the ideas "Wash" possesses, we are elected as knowing what we are talking about, but, on the other hand, if at all antagonistic, we are wrong most of the time.

That is what I am driving at in these remarks, and it is because, perhaps, some of us are wrong that writers should give clearly, if possible, their definitions of problems put forth instead of hurling a series of questions at the other fellows. I fail to see any progress gained by the adoption of such methods.

A short time ago I differed somewhat with "Wash" on one point which he dwells upon a great deal, in the form of "Question 3" I believe, in his letter in the October issue, namely, the function of the flyer presser condensing the strand. He has made the statement that the pressure of the flyer presser pad against the bobbin in process condenses the strand or roving.

This statement, I think, was published in the May, 1927, issue. In a later issue I asked "Wash" why this aforementioned condensing of the strand took place, but still no proof arrives.

Now in the letter by "Wash" published in the May, 1927, issue he stated that the pressure of the presser pad against the empty bobbin is the greatest. Hence, according to his theory, the strand must be condensed the greatest. Still, on reading a recent letter, I find that he states that the first lap on the bobbin is not condensed, but appears like a "ribbon," that is using his own idea of the strand at that point, though he still claims the point of the presser pad condenses the strand variably as it is wound on the bobbin, or, in other words, the strand gradually increases in diameter as it is being laid on the bobbin through decreasing pressure of the presser pad.

As I have said before, I cannot understand what this pressure of the pad has to do with altering in any way the diameter of the roving. "Wash" fails to explain this point so far, though we have had the variable pressure drummed into us, but its relation to the diameter of the strand is another question.

Surely, anyone will understand by this contributor's statement that from the beginning to the end of a set of roving there is bound to be a gradual variation in twist, minute, of course, but nevertheless it is actually occurring.

Here I want to ask "Wash" and others to study the action of the flyer, not forgetting that roving as produced on a fly frame requires a certain amount of twist, and that the flyer is helping to put that twist into the roving and by so doing neglects to wind-on one coil for every revolution it makes during winding-on, which means to say that the action of the flyer is an unwinding one. If the latter were not so, winding would not be accomplished. That is one point "Wash" did miss. I think he will do well to abandon the presser pad pressure idea and the gradually increasing diameter. This latter state must be so minute that it is inconceivable how a fellow could get the idea and practically tell us that twist per inch varies on a fly frame owing to the pressure of a pad against the bobbin.

After thinking over this point and reviewing the statement, it has occurred to me that he must have been thinking about the winding-on principle as applied to a ring spinning frame where the traveler exerts the greatest strain on the yarn when winding on the bare bobbin, due of course to the yarn having to drag the traveler around the ring at a great angle, resulting in loss of a variable amount of twist mostly at the start of the set.

D. E. (R. I.)

Education and Jobs.

EDITOR COTTON:

Just a word to the boys who are afraid that the college man will get all the jobs worth while.

The man who has ambition and stick-ability need have no fear. It does not require so much schooling, as it does experience, to run a mill. The first thing to bear in mind is the Golden Rule, practicing it in every day life, both in and out of the shop. A man should try to get the confidence of the people with whom he comes in contact, and should never require of other men more than he would do himself if placed in their position. He should always demand what he knows to be right, and in so doing will have the cooperation of those around him. We all respect a man who we know tries to do the right thing.

As to an education. If a man has a common school education, he can read COTTON each month, ask all kinds of questions and get replies either personally or through the paper. If he cannot remember all he reads he should make a practice of filing each copy and at spare times go over them. He thus has at his command the greatest textile college in the world. All it costs to mail a letter to Atlanta is a two cent stamp. The readers should ask for what they want, remembering the command of the giver of all good gifts, "Ask and it shall be given to you." Likewise, I say to you brothers, when in trouble, write COTTON. They will pull you out of the mire.

In conclusion let me say, we should make it a rule to read some good works pertaining to the business we are engaged in and improve our knowledge and be in a position to converse intelligently with our superior officers at all times.

O. T. (N. C.)

New Handbook on Morse Chain Drives.

Morse Chain Co., Ithaca, N. Y., has recently issued a handbook on silent chain drives designed to facilitate the selection and design of the proper drive for any given requirements. Instructions on how to design silent chain drives, followed by an example of an actual design, are given, and a comprehensive list of typical drives to assist in estimating the cost of similar drives, is shown; this section gives pitch, width, and number of teeth for use on similar drives. Also, there are tables giving sprocket diameters, standard hub lengths, bores and other useful data. Complete instructions on the installation, care and operation of Morse drives, are given. A section illustrates and describes Morse drives on machinery in different industries. The new Morse speed reducer with Morse flexible coupling, enclosed in cast-iron housing, is also described.

Knitting Section

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MISSES' and Boys' fancy hose can now be produced in a new range of patterns and color designs with the Model B Spiral Floating Striper.

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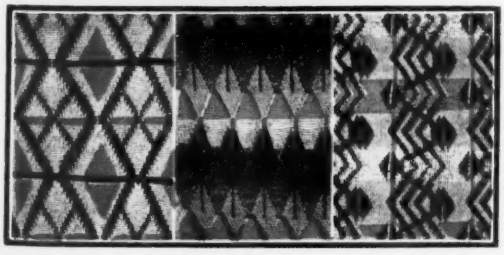
An idling device for throwing the striping mechanism out of action enables the knitting of a portion of plain fabric at the top of the stocking; the fancy pattern then being reinstated to make a cuff top.

Attractive golf hose, for men and boys, may also be produced on this machine.



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Write our Home Office for samples made on the Flatlock, or submit your own fabrics for sample purposes.

Hosiery Cost and Production Control System

The Yarn Records; Records on Parts and Supplies; Individual Departmental Records; Their Needs and Uses.

By HAROLD E. PARKER, TEXTILE ECONOMIST.

PART THREE.

Yarn Records.

The next form that would naturally come up as Fig. 7 is not essential to the production control system, being incidental. It is, however, important, in that it constitutes a yarn record, and shows the yarn number and kind, the contract number, and a perpetual inventory of the amount bought, received, used, balance on hand, date and amount of contract, with columns covering the balance due on con-

YARN WOUND

Date: Month of March	Rayon		Cotton		Mercerized		Yarn Back Wound			
	Denier	Lbs.	Count	Lbs.	Count	Lbs.	Count	Lbs.	Count	Lbs.
1	100	200	16/1	368	30/2	409	16/1	26		
2										
3										
4										
5										
30										
31										
Total										

FOREMAN_____

FIG. 9

tract, the amount already applied, etc. On the reverse side of this form is a suitable arrangement of columns for entering the invoice date, case number, gross weight, tare, net yarn, date received and date opened. This form is not shown as it is so simple that the text makes it easily understood.

The next form is also concerned with the yarn stock, showing the "Yarn in Process". This gives, for each day in the week, the cases of yarn received, showing the case number, kind, count, color, etc., as well as the yarn mill from which they were received. The invoiced figures showing the gross, tare and net weight is marked down, and then after it is in the mill this is checked, and the actual gross and net weights and tare entered, showing up any discrepancies which may occur in connection with the yarn supply. This is on a large heavy card, about 10 by 12 inches in size. It is kept by the man opening and checking the yarn and is signed by him and returned to the office weekly and it is from the figures thus obtained that the inventory sheet, Fig. 7, is prepared. This "yarn in process" record would be Fig. 8, but as it would not clarify the description, it is omitted in order to save space.

If the mill does its own winding of yarn for any reason, the form shown in Fig. 9 will serve to keep a record of this, showing daily the amount and kind of yarns wound and back-wound, so that this information is readily available.

Figure 10 shows the form used for keeping a record of the parts and supplies used in the knitting room. The foreman keeps this in a drawer of his cabinet and fills it in each day in accordance with the supplies used. The card provides a place for the entire week's operation, and this is turned in to the office each week.

We come now, beginning with Fig. 11, to the departmental reports which provide the real meat for the basis of the production report system. The method of using these may seem a little involved, but if the following explanation is read carefully, the matter will be clear.

Departmental Records.

All departmental reports are made out in duplicate and are padded in book form; one white sheet and one canary colored sheet for each day of the week, and then two pink

PARTS AND SUPPLIES FOR KNITTING ROOM

FIXER ..... DATE .....

	Needles	Cast Offs	Hooks	Sinkers				
Mon.								
Tues.								
Wed.								
Thu.								
Fri.								
Sat.								
Total								
Mon.								
Tues.								
Wed.								
Thu.								
Fri.								
Sat.								
Total								

FIG. 10

sheets, on which are totaled the six daily sheets. Work sheets for five weeks are put in a book to care for the variation of the months opening and closing on various days of the week, causing a month to sometimes cover a portion of five weeks; that is, the first of the month very seldom comes on the first working day of the week, and consequently a portion of five calendar weeks is often contained in one month. For example, if a month should begin on Saturday and end on Monday, as January 1927 did,

Machine Room Report

Date _____ 192__

H. H. Machines Run	Day	100	Night	105
H. H. Machines Stand	Day	5	Night	0
K. Machines Run	Day	29	Night	23
K. Machines Stand	Day	0	Night	6
B.5 Machines Run		50		
B.5 Machines Stand		0		
Ribbers Run	Day	20	Night	0
Ribbers Stand	Day	3	Night	23
Fancy Top Machinse Run		4		
Fancy Top Machines Stand		2		

FANCY TOPS KNIT

Pattern No. 500 — 2471 Doz.
Pattern No. — Doz.
TOTAL 2471 Doz.

HALF HOSE KNIT

Style No. 112 — 5902 Doz.
Style No. 89 — 19502 Doz.
Style No. 3017 — 4657 Doz.
Style No. — Doz.
TOTAL 30061 Doz.

LADIES' HOSE KNIT

Style No. 777 — 4452 Doz.
Style No. 888 — 2320 Doz.
TOTAL 6772 Doz.

MISSES' HOSE KNIT

Style No. 500 — 2471 Doz.

5	6	7	8	9	10
	445	751	746	529	

Style No. — Doz.

5	6	7	8	9	10

TOTAL 2471 Doz.

5	6	7	8	9	10
	445	751	746	529	

GRAND TOTAL KNIT 36304 Doz.

GOODS INSPECTED

Style No. 112	— 5400 D.	1sts 502	D. 2nds 09	% 2nds
Style No. 89	— 18002 D.	1sts 1500	D. 2nds 08	% 2nds
Style No. 3017	— 4250 D.	1sts 407	D. 2nds 09	% 2nds
Style No.	— D.	1sts	D. 2nds	% 2nds
Style No. 777	— 4002 D.	1sts 450	D. 2nds 10	% 2nds
Style No. 888	— 2018 D.	1sts 307	D. 2nds 12	% 2nds
Style No.	— D.	1sts	D. 2nds	% 2nds
Style No. 500	— 2195 D.	1sts 276	D. 2nds 11	% 2nds
TOTAL 35867 D.		1sts 3437	D. 2nds	
TOTAL D.		3rds	Avg. 10	% 2nds.

GOODS MENDED 0 Doz.

RAYON WOUND		COTTON WOUND	
100 Denier	5395 Lbs.	6/2 Count	849 Lbs.
Denier	Lbs.	40/1 Count	9726 Lbs.
Total	5395 Lbs.	Total	10575 Lbs.
BACKWOUND:			
Count	Lbs.	Count	Lbs.
Total	0 Lbs.	Total	Lbs.

Signed _____

NEEDLES USED

No. 68	Amt. 9125	Cost $	365 00
No. 58	Amt. 2875	Cost $	115 00
No. 54	Amt. 1506	Cost $	60 24
No. 88	Amt. 600	Cost $	24 00
No.	Amt.	Cost $	
TOTAL AMT. 14106		$	564 24

CAST-OFFS USED

No. 21	Amt. 5500	Cost $	137 50
No.	Amt.	Cost $	
TOTAL AMT. 5500		$	137 50

HOOKS USED

No. 66	Amt. 6650	Cost $	332 50
No.	Amt.	Cost $	
TOTAL AMT. 6650		$	332 50

SINKERS USED

No. 311	Amt. 1000	Cost $	25 00
No.	Amt.	Cost $	
TOTAL AMT. 1000		$	25 00

GRAND TOTAL H. H. $ 722 26
GRAND TOTAL K. $ 140 18
GRAND TOTAL B.5 $ 196 80

RIBBER NEEDLES USED

No. 9	Amt. 250	Cost $	12 50
No.	Amt.	Cost $	
TOTAL AMT. 250		$	12 50

WASTE

Knitter's	1032	Lbs.
Ribber's	29	Lbs.
		Lbs.
Fancy Top Machine's	5	Lbs.
Rayon Winder's	93	Lbs.
Cotton Winder's	10	Lbs.
Miscellaneous	108	Lbs.
TOTAL	1277	Lbs.

REMARKS

FIG. 11

Looping Room Report

Date ____ 192__

HALF HOSE LOOPED

Style No. 112 — 5802 Doz.
Style No. 89 — 19602 Doz.
Style No. 3017 — 4657 Doz.
Style No. ____ — ____ Doz.
TOTAL 30061 Doz.

LADIES' HOSE LOOPED

Style No. 777 — 4452 Doz.
Style No. 888 — 2320 Doz.
Style No. ____ — ____ Doz.
Style No. ____ — ____ Doz.
TOTAL 6772 Doz.

MISSES' HOSE LOOPED

Style No. 500 — 2391 Doz.
|5 |6 405 |7 711 |8 746 |9 529 |10
Style No. ____ — ____ Doz.
|5 |6 |7 |8 |9 |10
TOTAL 2391 Doz.
|5 |6 405 |7 711 |8 746 |9 529 |10
GRAND TOTAL 39224 Doz.

GOODS MENDED

Doz. 1400 Price $ 8.00 Extension $112.00
Doz. 2037 Price $ 10.50 Extension $213.80
TOTAL 3437 Doz. Extension $325.88

GOODS HEMMED

Doz. 6772 Price $ 6.00 Extension $406.32
Doz. 2391 Price $ 4.00 Extension $ 95.64
TOTAL 9163 Doz. Extension $501.96

GOODS TURNED 9163 Doz.

TOPS TURNED 2391 Doz.

THIRDS WORKED 250 Doz.

MISC. LOOPING EXPENSE
$ 411.50 Extension

GOODS INSPECTED

Style No. 112	—	5609	D. 1sts	163	D. Mach. 2nds	30	D. Loop. 2nds	03	% 2nds
Style No. 89	—	19006	D. 1sts	533	D. Mach. 2nds	64	D. Loop. 2nds	03	% 2nds
Style No. 3017	—	4207	D. 1sts	239	D. Mach. 2nds	11	D. Loop. 2nds	05	% 2nds
Style No. ____	—	____	D. 1sts	____	D. Mach. 2nds	____	D. Loop. 2nds	____	% 2nds
Style No. 777	—	4248	D. 1sts	189	D. Mach. 2nds	15	D. Loop. 2nds	04	% 2nds
Style No. 888	—	2209	D. 1sts	106	D. Mach. 2nds	5	D. Loop. 2nds	05	% 2nds
Style No. ____	—	____	D. 1sts	____	D. Mach. 2nds	____	D. Loop. 2nds	____	% 2nds
Style No. 500	—	2300	D. 1sts	51	D. Mach. 2nds	40	D. Loop. 2nds	09+	% 2nds
TOTAL		37578	D. 1sts	1281	D. Mach. 2nds	165	D. Loop. 2nds		

TOTAL 250 D. 3rds. Avg. 4 % 2nds

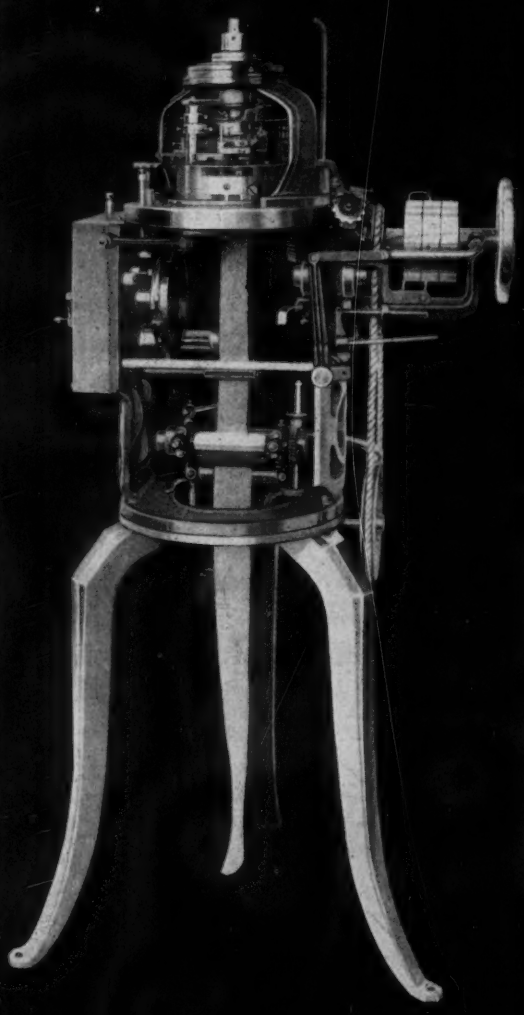
WASTE

Looper's - - 1479 Lbs.
Hemmer's - - 640 Lbs.
Miscellaneous - ____ Lbs.
TOTAL - - 2119 Doz.

REMARKS

Signed ____

FIG. 11A



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CIRCULAR RIBBER

then there would be only one day's work on the first pink sheets and only one day's work on the last pink sheets, while on each of the second, third and fourth week's pink sheets there would be the summary of six day's work.

Following the fifth week's pink total sheets are four blue sheets on which are totaled the figures from the pink weekly sheets. Of course, the number of copies made of the daily, weekly and monthly sheets will be governed entirely by the individual mill's requirements.

The various foremen fill out each day the daily reports for their departments and turn into the office the white sheet, which is the original, where it is checked for errors. The canary colored sheet, which is the carbon copy, is retained in the book, and from these, the foreman makes his weekly report on the pink sheets. One pink sheet goes to the office for verification, the carbon on pink remaining in the book. The foreman proceeds in this manner throughout the month and at the end of the month the like figures on the five pink weekly sheets are added together and the totals placed on the blue monthly sheets. One of the blue sheets is detached and retained by the foreman. The book containing a copy of all the daily and weekly reports, together with the remaining three blue sheets, is turned in to the office, where the monthly sheets are verified. One copy of the monthly sheets is given to the executive and one to the superintendent, and one copy remains in the book for further reference.

This method of having the reports in book form, making the reports out in duplicate, always retaining in the book one copy of each report, whether daily, weekly, or monthly, as a permanent record, makes it unnecessary for the reports to be copied in the office, thereby eliminating considerable work. For, at the end of the month, when the book is turned in containing a copy of all reports, it is filed in the office. This is the best permanent record, for all of the figures are there in the foreman's own writing, and there is no chance for dispute to arise over errors made in copying and writing up the reports.

It is considered best for the foreman to retain in the book the carbon copy, for it is much easier to detect an alteration on a carbon copy remaining in the possesion of the foreman after the office report has gone in than it would be to detect it on an original, for it is almost impossible to change a figure on the carbon copy without the

Dye Room Report

Date _____ 192__

HALF HOSE DYED

Style No. 117 — 5800 Doz.
Style No. 89 — 19600 Doz.
Style No. 3017 — 4650 Doz.
TOTAL 30050 Doz.

LADIES' HOSE DYED

Style No. 777 — 4460 Doz.
Style No. 888 — 2320 Doz.
TOTAL 6770 Doz.

MISSES HOSE DYED

Style No. 500 — 2400 Doz.
|5 |6 400 |7 700 |8 750 |9 550 |10
Style No. — Doz.
|5 |6 |7 |8 |9 |10
TOTAL 2400 Doz.
|5 |6 400 |7 700 |8 750 |9 550 |10
GRAND TOTAL 39220 Doz.

REMARKS

Signed

YARN DYED

RAYON:

100	Denier	2700 Lbs.
	Denier	Lbs.
	Denier	Lbs.
TOTAL		2700 Lbs.

MERCERIZED:

60/2	Count	849 Lbs.
40/1	Count	9726 Lbs.
	Count	Lbs.
TOTAL		10575 Lbs.

COTTON:

	Count	Lbs.
	Count	Lbs.
TOTAL -		0 Lbs.
GRAND TOTAL -		Lbs.

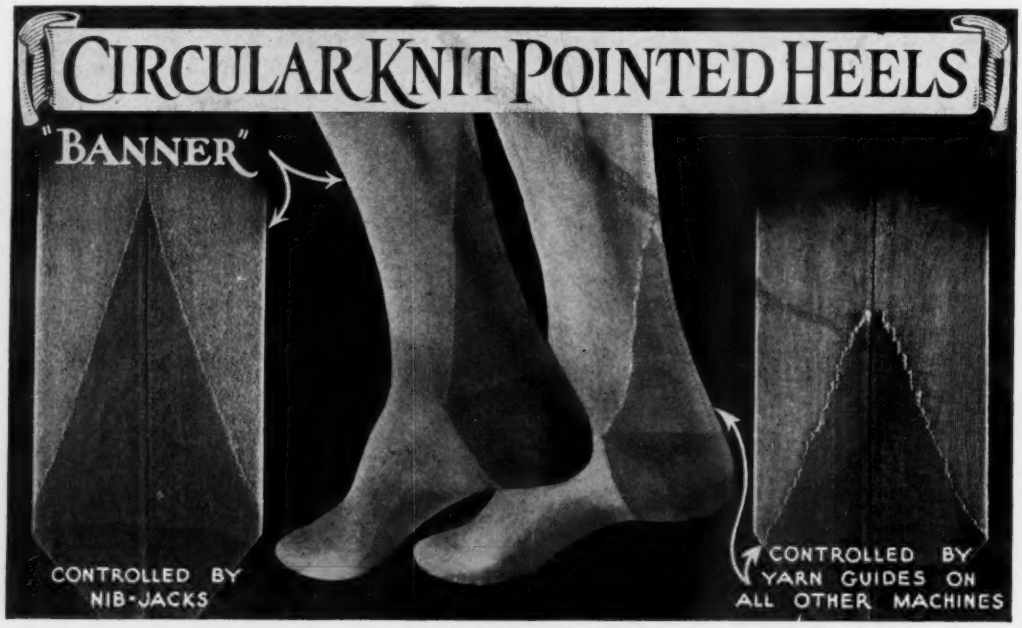
RAYON CONDITIONED 13275 Lbs.

WASTE

Rayon - - - - - - 20 Lbs.
Cotton. - - - - - - 39 Lbs.
TOTAL - 59 Lbs.

Coal Consumed - - - 46 800 Lbs.

FIG. 12



Are you absolutely assured of perfectly tapered reinforced pointed Heels, with your present equipment?

There is no assurance of perfect work unless there is positive control of each needle.

The "BANNER" Nib-Jack Pointed Heel machine is the only circular knit machine that absolutely controls each needle independently. By their use you are absolutely free from any infringement, confident of better work, less seconds, greater production and more profits.

A glance at the above illustration will show you the marked contrast between the Pointed Heels made on "BANNER" Nib-Jack machines and those of all other makes using other methods.

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change being noticeable.

The monthly sheets detached from the book are filed in loose-leaf binders so that a sheet can be easily detached and placed alongside of the similar sheet of another month for comparison, or the reports of the various departments can be placed alongside of each other when a comparison of the work in all the departments is desired.

We will now examine the daily reports, taking up first

Boarding Room Report

HALF HOSE BOARDED

Style No. 112 — 5800 Doz.
Style No. 89 — 19600 Doz.
Style No. 3017 — 4650 Doz.
Style No. ____ — ____ Doz.
Style No. ____ — ____ Doz.
TOTAL 30050 Doz.

LADIES' HOSE BOARDED

Style No. ____ — ____ Doz.
Style No. 777 — 4450 Doz.
Style No. 888 — 2320 Doz.
TOTAL 6770 Doz.

MISSES' HOSE BOARDED

Style No. 500 — 2400 Doz.
|5 |6 400 |7 700 |8 750 |9 550 |10
Style No. ____ — ____ Doz.
|5 |6 |7 |8 |9 |10
TOTAL 2400 Doz.
|5 |6 400 |7 700 |8 750 |9 550 |10
GRAND TOTAL 39220 Doz.

PICKOUTS

Half Hose - - 131 Doz.
Misses Hose - - 19 Doz.
TOTAL - - 150 Doz.

YANKED

Half Hose Yanked - 30050 Doz.

Signed .....

FIG. 13

that of the machine or knitting room, as shown in Fig. 11. It will be noticed that the forms used for illustration are made out for a mill making half-hose, misses' hose and ladies' hose, as well as ribber machines. On all of the various departmental reports, the foreman of each department records a summary of the day's operations and activities in the spaces provided. It is not felt that an explanation of the various entries is necessary, as the reports and entries will be self-explanatory to a mill man. However, we will look briefly at the knitting report. This is a monthly report and since the same form is used for the weekly and daily reports, the only difference is in the consolidation of the figures over each period on the same kind of sheet.

By referring to Fig. 11, it will be noticed that there were 100 H-H machines running, and 5 standing on the day run. At night 105 of the H-H machines ran and none stood. Of the K machines, 29 ran and none stood during the day. At night 23 K machines ran and 6 stood. Of the B-5 machines, 50 ran and one stood during the day. (These machines not being operated at night.)

Of the ribbers, 20 ran and 3 stood during the day. At night all of the ribbers stood. Of the fancy top machines, 4 ran and 2 stood.

Of pattern No. 500, there were 2,471 dozen fancy tops knit.

There were, of half-hose, 5,902 dozen of Style No. 112, 19,502 dozen of Style No. 89, 4,657 dozen of Style No. 3017, making a total amount of half-hose knit of 30,061 dozen.

Of the ladies' hose knit, there were 4,452 dozen of Style No. 777, 2,320 dozen of Style No. 888, making a total amount of ladies' hose knit of 6,772 dozen.

Of the misses' hose knit there were 2,471 dozen of Style No. 500 as follows: 445 dozen Size 7, 751 dozen Size 8, 746 dozen Size 9 and 529 dozen Size 10.

The 30,061 dozen half-hose, the 6,772 dozen ladies' hose, and the 2,471 dozen misses' hose are added together, giving a Grand Total Knit of 39,304 dozen.

We now come to the inspecting. The form shows that of Style No. 112 there were 5,400 dozen firsts, 502 dozen seconds, which gives 9 per cent seconds. Of Style No. 89 there were 18,002 dozen firsts and 1,500 dozen seconds, which gives 8 per cent seconds. Of Style No. 3017 there were 4,250 dozen firsts and 407 dozen seconds, giving 9 per cent seconds. Of Style No. 777 there were 4,402 dozen firsts and 450 dozen seconds, which gives 10 per cent seconds. Of Style No. 888 there were 2,018 dozen firsts and 302 dozen seconds, which gives 12 per cent seconds. Of Style No. 500 there were 2,195 dozen firsts and 276 dozen seconds, giving 11 per cent seconds. Adding the various styles together, there were 35,867 dozen firsts and 3,437 dozen seconds, giving an average percentage of seconds of 10 per cent.

There were no goods mended in this department during the month in question.

There were 5,395 pounds of 100 denier rayon wound during the month.

There were also 849 pounds of 60s/2 and 9,726 pounds of 40s/1 cotton yarn wound during the month. There was no backwinding done.

The report shows that there were 9,125 No. 68 needles used, at a total cost of $365; 2,875 No. 58 needles, cost $115; 1,506 No. 54 needles, cost $60.24; 600 No. 88 needles, cost $24 making a total of 14,106 needles at a grand total cost of $564.24. There were 5,500 No. 21 cast-offs used at a total cost of $137.50. There were 6,650 No. 66 hooks used at a cost of $332.50.

Segregating the cost of the needles, cast-offs, hooks and sinkers used on each type of machine, we see that there was $722.26 spent for needles, cast-offs, hooks and sinkers used during the month in the H-H machines, $140.18 for the same supplies used in the K machines, and

MULTI-DESIGN HALF HOSE

As knit on Fidelity's Multi-Design Machine, 72 colors vertical are possible in men's true-rib half hose. . . . . Better retail merchants are asking for Multi-Design patterns. . . . . Better manufacturers have them.

FIDELITY MACHINE CO.
3908-18 Frankford Avenue
Philadelphia

THE FIDELITY UNIVERSAL RIBBER

Illustrating one of the new 1928 Multi-Design half hose patterns with the tailored foot.

FIDELITY

Finishing Room Report

Date ..... 192....

HALF HOSE PAIRED

Style 112 — 5320 D. 1sts 560 D 2nds 20 D. Holes 09 % 2nds Price $ 2 00 EXT. $ 118 00
Style 89 — 17800 D. 1sts 1600 D 2nds 102 D. Holes 09 % 2nds Price $ 2 00 EXT. $ 390 04
Style 3017 — 4200 D. 1sts 407 D 2nds 50 D. Holes 09 % 2nds Price $ 2 00 EXT. $ 93 14
Style ..... — .... D. 1sts ..... D 2nds ..... D. Holes .... % 2nds Price $ ..... EXT. $ .....
TOTAL 27320 D 1sts 2567 D. 2nds 172 D Holes TOTAL EXTENSION $ 601 18

LADIES' HOSE PAIRED

Style 777 — 4101 D. 1sts 293 D 2nds 60 D Holes 09 % 2nds Price $ 2 00 EXT. $ 84 08
Style 888 — 2125 D. 1sts 120 D 2nds 75 D. Holes 09 % 2nds Price $ 2 00 EXT. $ 46 40
Style ..... — .... D. 1sts ..... D 2nds ..... D. Holes ..... % 2nds Price $ ..... EXT. $ .....
TOTAL 6226 D. 1sts 413 D. 2nds 135 D. Holes TOTAL EXTENSION $ 135 48
TOTAL 11 D. 3rds 6 D. ReBrds 35 D. ReDyes

MISSES HOSE PAIRED

Style 500 — 2200 D. 1sts 200 D 2nds 71 D. Holes 10 % 2nds Price $ 2 00 EXT. $ 42 00
|5 445 |6 757 |7 746 |8 599 |9 |10 |11
Style — D. 1sts D 2nds D. Holes % 2nds Price $ EXT. $
|5 |6 |7 |8 |9 |10 |11
TOTAL 2200 D 1sts 200 D. 2nds 71 D. Holes TOTAL EXTENSION $ 42 00
|5 445 |6 757 |7 746 |8 599 |9 |10 |11
TOTAL 3 D 3rds 4 D ReBrds 2 D. Redyes GRAND TOTAL ALL 39365 D.

GRAND TOTAL 35746 D. 1sts 3180 D. 2nds 378 D. Holes 14 D. 3rds 10 D. ReBrds. 37 D. ReDyes

GOODS FOLDED AND BOXED

Doz 39026 Price $ 1 00 Extension $ 390 26
Doz Price $ Extension $
Doz. Price $ Extension $
TOTAL 39026 Doz. Extension $ 390 26

GOODS STAMPED

Doz 27320 Price $ 50 Extension $ 136 60
Doz 5826 Price $ 75 Extension $ 42 94
Doz 2100 Price $ 50 Extension $ 10 50
TOTAL 35246 Doz. Extension $ 190 04

GOODS BUNDLED

Doz. 0 Price $ Extension $
Doz. Price $ Extension $
Doz. Price $ Extension $
TOTAL 0 Doz. Extension $

GOODS MENDED

Doz. 3680 Price $ 8 00 Extension $ 294 40
Doz. 14 Price $ 14 00 Extension $ 1 96
Doz. Price $ Extension $
TOTAL Doz. Extension $ 296 36

MISC. FINISHING EXPENSE

$ 404 85 Extension

Signed .....

GOODS HAVING TOE STICKERS ATTACHED

Doz. 5246 Price $ 50 Extension $ 26 23
Doz. Price $ Extension $
Doz Price $ Extension $
TOTAL 5246 Doz. Extension $ 26 23

GOODS HAVING RIDER TICKETS ATTACHED

Doz. 33146 Price $ 50 Extension $ 165 70
Doz Price $ Extension $
Doz. Price $ Extension $
TOTAL 33146 Doz. Extension $ 165 70

MENDED SECONDS WORKED

Doz 150 Price $ 3 00 Extension $ 4 50
Doz. Price $ Extension $
TOTAL 150 Doz. Extension $ 4 50

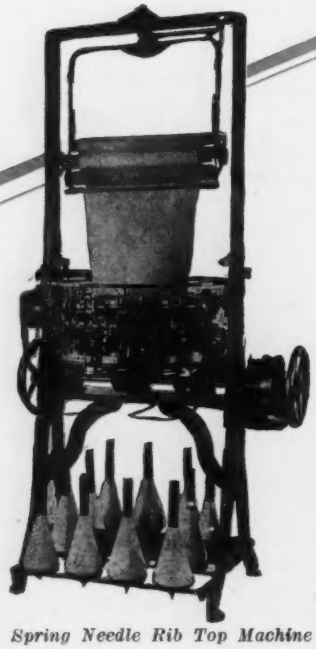
TOPS TURNED ON MISSES HOSE

Doz 2100 Price $ 50 Extension $ 10 50
Doz. Price $ Extension $
TOTAL 2100 Doz. Extension $ 10 50

REMARKS

FIG. 14

Merited Confidence



Spring Needle Rib Top Machine

Spring and Latch Needles

IN mills noted for their quality knitting, the managements have utmost faith in their knitting machinery.

A big majority of these mills use Cooper Knitting Machinery exclusively, for in this equipment the textile man can place his confidence and still rest easy. He is relieved from anxiety, knowing the requirements will be taken care of.

This belief in Cooper is the result of a fine combination of efficiency, precision, and numberless little refinements that have grown out of 86 years of experience.

Cooper Spring Needle Circular Rib Knitting Machinery is standard for ribbed underwear in silk, Rayon, cotton and woolen underwear, Shirt Cuffs, Drawer Bottoms and Collarette.

Oldest Makers of Spring Needles in the U. S.

With a solid rock foundation — laid in 1842 as the first manufacturers of spring needles — Cooper has risen steadily with the industry.

Today Cooper Latch Needles are now being produced from special High speed wire which takes a more uniform temper.

They are now equipped with the improved Non-Turnable Rivets.

They are used by the leading mills of the textile industry.

Charles Cooper Co.

Machine and Needle Works

Bennington, Vt.

G. H. ROGERS, Traveling Representative, 677 Warren St., Albany, N. Y.

C. C. KELLEY, Sales Manager, 121 East 24th St., New York City.

J. A. WILLARD CO., INC., Southern Representative, Greensboro, N. C.

Agents: MELLOR, BROMLEY & CO., Ltd., LEICESTER, ENGLAND.

ELBROOK, INC., 30 Peking Road, Shanghai, China, Agents for China and Japan.

M. BUCHSBAUM, Calle Absina 1814, Buenos Aires, Argentina.

SHIPPING REPORT

Date ..... 192 ....

SHIPPED:

Style 112	—	5320	D. 1sts	580	D. 2nds	0	D. 3rds	09	%	Sec.
Style 89	—	17800	D. 1sts	1600	D. 2nds	50	D. 3rds	09	%	Sec.
Style 3017	—	4200	D. 1sts	450	D. 2nds	0	D. 3rds	09	%	Sec.
Style	—		D. 1sts		D. 2nds		D. 3rds		%	Sec.
Style 777	—	4001	D. 1sts	460	D. 2nds	0	D. 3rds	10	%	Sec.
Style 888	—	2105	D. 1sts	220	D. 2nds	0	D. 3rds	09	%	Sec.
Style	—		D. 1sts		D. 2nds		D. 3rds		%	Sec.
Style	—		D. 1sts		D. 2nds		D. 3rds		%	Sec.
Style 500	—	2200	D. 1sts	250	D. 2nds	0	D. 3rds	10	%	Sec.
Style	—		D. 1sts		D. 2nds		D. 3rds		%	Sec.
Style	—		D. 1sts		D. 2nds		D. 3rds		%	Sec.
Style	—		D. 1sts		D. 2nds		D. 3rds		%	Sec.
Style	—		D. 1sts		D. 2nds		D. 3rds		%	Sec.
Assorted	—		D. 1sts		D. 2nds	21	D. 3rds		%	Sec.
TOTAL	—	35626	D. 1sts	3560	D. 2nds	71	D. 3rds.	Avg. 09+	%	

WASTE SHIPPED		SUPPLIES SOLD
White Ravellings	59 lbs.	500 #68 needles
Piece Waste	1184 lbs.	12 Parts #106 S+W
Looper Clips	1479 lbs.	100 lbs. Rayon on cones
Hemmers Clips	640 lbs.	
Rayon	93 lbs.	
	lbs.	
TOTAL	3455 lbs.	

FIG. 15

$196.80 for the same supplies used in the B-5 machines. There was $12.50 spent during the month for 250 No. 9 ribber needles which were used in the ribbers.

The waste made during the month was: Knitters, 1,032 pounds; ribbers, 29 pounds; fancy top machines, 5 pounds; rayon winders, 93 pounds; cotton winders, 10 pounds; and 109 pounds of miscellaneous waste, giving a total of 1,277 pounds of waste made during the month.

The reports for the looping, dyeing, boarding and finishing departments are filled out in the similar manner and records kept. The shipping room report simply shows how many dozen of firsts, seconds, thirds and per cent of seconds of each style were shipped, together with the amount of waste shipped, and the supplies sold, if the mill does any of this. These reports are shown in Figs. 11-A, 12, 13, 14 and 15, and are self-explanatory.

Note. The concluding article in this cost and production control system is being prepared and will appear in an early issue. It will include the complete executive report for cost and production control.—The Editors.

John S. Krauss, New President of Gilmer Co.

The L. H. Gilmer Co., Philadelphia, Pa., manufacturers of moulded rubber and fabric belts, and spindle bands, announce a number of changes effective the first of the year, the chief of which was the appointment of John S. Krauss as president. L. H. Gilmer, who founded the company 21 years ago, is now chairman of the board of directors. Mr. Krauss is a graduate engineer, and joined the company as factory manager. He was later promoted to secretary-treasurer and then was made vice-president and general manager.

The SAFETY Element . . .

You cannot put aside the matter of operators' safety with a shrug of the shoulders.

Nor will any "good enough" arrangement solve this mill problem satisfactorily.

Particularly true with extraction . . . one of many reasons why the AMICO Oscillating (Centrifugal) Extractor is especially suited for mill dyeing processes.

Fool-proof isn't a myth—not with AMICOS, at least.

Here's a machine with no superstructure . . . which means it is accessible easily and safely from three sides or overhead.

AND—the lever control system governs safety in starting or stopping . . . automatically. The only extractor with this feature.

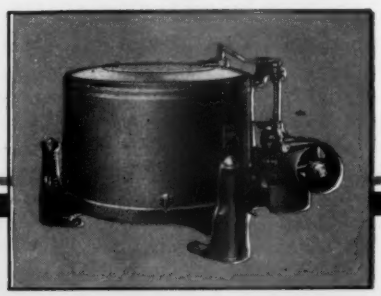
The basket cannot start until the cover is down. The cover cannot be lifted until the machine comes to a full stop. Meets all insurance requirements.

There are other advantages, of course: faster speed, which assures quicker, more thorough extraction; lower power consumption; larger per day production due to ease of handling materials; more loads in a given time due to faster starting, running and stopping. A capacity and speed which makes one 48" AMICO more than the equal of three 30" old style extractors.

But just on the one point — SAFETY to operators—the AMICO Oscillating Extractor merits close investigation. Write for the details—*today!*

ARMAND MAY... INC.

ATLANTA, GA.



Other Offices:
NEW YORK, N. Y., and CHICAGO, ILL.

Examination of Full-Fashioned Hosiery

Methods and Procedure. Some Points of Especial Importance. Money Spent for Inspection Usually Returns With Interest.

BY C. H. BAXTER.

In the manufacturing of full-fashioned hosiery there is perhaps nothing more important than a thorough examination of the product during and after each operation. I say this because I know that in order to operate a hosiery mill at a profit, and satisfy the customers, one must make quality product and only by a systematic method of examination can one secure a product that is of high quality and standard at all times.

In manufacturing hosiery, or in fact any other product, it is necessary to have production in order to manufacture at a profit, but at times in the desire to secure production, the matter of securing good production is neglected. By good production, I mean quality and the only way one can secure quality is by a thorough examination at all times, so as to check any possible chance of having the product made with many flaws and defects.

The mistake sometimes made is that examination methods are not used, believing that a saving in cost is thereby secured. The argument presented is that the labor should do their work properly and see flaws and defects themselves, and not expect the Company to pay additional wages for examination which will increase the cost of the product. Unfortunately labor is only interested in earning the wages as easily as possible and very few ever produce the quality of work desired without being watched or having their work examined.

It has been my experience in full-fashioned hosiery manufacturing, that money spent for examination is money well spent, and that strict examination methods result in better work being produced and less "seconds" made.

In this article I will try to outline what is necessary in the matter of examination, in order that, at all times, one will secure a good product and at the same time, have a low percentage of "seconds."

The first operation in making full-fashioned hosiery, is the legging operation or the making of the leg of the hose. One important thing that should be done in examining legs is that each day, at least, one set of legs are examined by someone, preferably the knitting foreman, who thoroughly understands the knitting operation, to try to find flaws or defects. If any mechanical defects are found, they should be immediately rectified, as usually any such defects in hosiery are second quality goods only.

In making the examination of a set of legs, the following method should be used.

The first thing to check is the number of courses per inch that are being knitted. As an illustration, we will say that a certain style number calls for a standard of 48 courses per inch. In order to make all hosiery of this style number as per the standard sample, it is necessary to see that 48 courses per inch are knitted at all times. This is very important because if this is not done, it is almost impossible to knit the foot onto the leg and have the stitch in the foot match the stitch in the leg.

The next thing that one should examine is the length of the legs. If the standard calls for the leg to be 30 inches long, then each stocking made on each section of the machine should be 30 inches long when completed. If any stocking is either too long or too short, an investigation should be made as to the cause and have it rectified at once. Short or long lengths are generally caused by the uneven adjustment of sinker heads; although at times, the cause is either in the tension or the condition of the material.

One must especially watch that the hosiery is not too short in length, as all short lengths are "seconds" only.

When these things have been examined and corrected, one should then examine the fabric for the purpose of seeing if the yarn is in good condition and for rough lines, caused by rough needles or rough sinkers and dividers. If the material is too dry, it will make sleazy fabric and rough lines always are "seconds" only. Watch the condition of the yarns closely, as this is one thing where quality will suffer if the yarn is knitted too dry.

An examination then should be made of each leg of the set of legs taken from the machine, when completed. In making this examination, first examine the selvages, to see that they are not ragged. Poor selvages make a poor seam and this is very unsightly, when worn. The narrowings should then be examined to see if there are any drop stitches, or so-called blind stitches. Examine very closely for blind drop stitches, as this is one point in hosiery that is weak and many a customer has condemned a manufacturer's product because in the first wearing of the hose, the narrowings broke out, caused by a blind drop stitch, which was not seen during the process of manufacturing and was sold as perfect merchandise.

In examining selvages and narrowings, be sure to look for cuts or holes in the fabric. Also look for so-called high stitches, usually caused by not carrying weight enough on the roller or because of not knocking over the stitch. The loose course in the heel should also be examined, as too small a loose course or a poorly made loose course, will cause trouble in looping and usually means breaking out or dropping stitches when being looped.

One thing to examine in legs, as well as in every other operation, is the matter of having loose ends clipped close with the scissors. Such ends as the splicing ends or heel ends should be clipped close to the fabric; otherwise there is the danger of the hosiery going to the customer with loose ends, sticking out of the selvage and other places in the hose and this always makes the hosiery look unsightly and gives the impression that the manufacturer is careless in making his product.

This examination as outlined should also be used by the leg examiners. By leg examiners, it is meant that girls are trained to examine all legs that are made for the purpose of throwing out flaws and defects. One will find

that this work pays for itself, as through having such an examination flaws and defects are caught before the legs are footed and disposition can be made of the bad legs by either having the legs topped on again on the legging machines or the stocking can be back-wound and most of the material used over again. It also has a better moral effect upon the knitters, as when they know that all the legs they produce are examined, they become more careful as to the kind of merchandise they put out.

The next operation to be examined is the topping and footing operation. This examination should also be done by the person who examines the legging operation. In examining the foot, first, look if the topping has been done properly. See that there are no so-called double loops in the heel, as these will always cause menders and usually such menders must be classed as "irregulars" or "seconds." One very important thing in connection with the topping operation is to see that the heel is topped so that the loose course is always topped on the end point of the transfer bar. Nothing will make the foot look more unsightly than to have the loose course of the heel six or more courses beyond the last point in the transfer bar, because when the seamer seams a hose made this way, it usually is bunched up at the point where the heel and sole of the foot are joined together.

The next important thing to examine is to see if the stitch in the instep of the foot matches the stitch in the leg. In other words, if the stitch in the foot is tighter or looser than the stitch in the leg, it gives the stocking a very poor appearance at this point and many "seconds" are thrown out because this has not been watched closely and rectified. Many times it is only a few sections on a footing machine that will knit either too loose or too tight and if this occurs, the person in charge of making the adjustments on knitting machines should immediately check all sinker heads on the machine and adjust them so that they will make the same number of courses per inch.

To illustrate this point, let me say that the style number that the footer is making is made with 48 courses per inch. When the legs are being footed, it is also necessary to make the foot 48 courses per inch and if certain sinker heads on the machine are out of adjustment, and only make 46 courses or 50 courses per inch, this will make the stitch too loose or too tight in the foot. So if one desires to have this correct at all times, it is necessary to see that all stockings made on the legging machine are 48 courses per inch and that the same number of courses per inch is made on the footing machine.

After examining the matching of the stitch, examine the selvages, especially the inside selvage of the splicing of the sole of the foot. A ragged selvage in the inside of the sole spoils the appearance of the foot and with a little care and attention on this point, poor selvages will not occur.

The narrowings in the gusset and toe of the foot should also be examined to see that there are no drop stitches or menders. Any drop stitches found should be corrected at once so to prevent making "seconds."

The next operation is the looping operation and in this operation, one must examine the looping to see if there are any drop stitches. Drop stitches are not always caused by the looper as many times the needle is not properly adjusted, and results in the stitch not being looped properly.

Where cutters are used on looping machines, it is necessary to see that they are sharp at all times, as dull cutters will spoil many stockings.

In the examination of seaming, this can be done by the grey work examiners. The seaming should be examined to see if all points such as welts, narrowings, and heel splicing are seamed evenly and properly, and that there are no skips in the seam. Any bad seaming that is found should be laid to one side and then have the seams ripped open and the entire stocking re-seamed. This is one operation where the stocking can always be repaired, without making it a "second," when repaired before dyeing; but after the hosiery has been dyed, then it is not so easily done. Therefore see that all poor seaming is caught before the hosiery is sent to the dyehouse and this will save many stockings from being thrown out as "seconds."

The next operation is what is called grey goods examination. In the operation the hosiery should be thoroughly examined to see that there are no menders and drop stitches in the narrowings, or any holes or breaks. Any such hosiery found should always be repaired before sending to the dyehouse. Also see that all loose ends are clipped short, so that when the hosiery is dyed and finished, that it has a clean appearance and is not frayed with loose and long ends. In this operation I find it is best to sort the hosiery in three classes, namely: Clean Hosiery, Soiled Hosiery and Irregulars. In sending the hosiery to the dyehouse use the clean hosiery for light colors, the soiled hosiery for dark colors. In sorting and classing the hosiery in this way, one will find that it reduces the percentage of re-dyes, as many times a stocking is thrown out as a re-dye in light colors, because of dirty streaks; whereas if it had been dyed into a darker shade, the dirty streak would not have been seen. Re-dyed hosiery never finish as well as when dyed only once and any method used that will save re-dyeing usually pays for itself.

In sorting and classing irregulars in grey goods, the reason for this is that when such a lot is dyed separately the final examiners know that there must be some fault or defect in each stocking and more care is taken in examining this lot, thereby lessening the danger of imperfect merchandise going to the customers because of laxness in final examination.

After the hosiery are dyed, they are then boarded. In the boarding operation, one must see that the seams are boarded perfectly straight and that the tops of the welts are boarded evenly. Also watch that the hosiery is thoroughly dried out before removing from the forms or boards because if they are taken off the forms in a damp condition, there is always the danger of the hosiery becoming wrinkled. Also see that all sizes are boarded on the proper size forms, as wrong sizing sometimes causes the customers to become dissatisfied.

In the final examination of hosiery, this is one operation where the operators should be thoroughly trained, as in this operation the final decision is made as to what is a first quality stocking and what is a second quality stocking. Many complaints and dissatisfaction from customers can be avoided if the operators in this work are skilled and have a thorough knowledge of just what can be considered as first quality merchandise. The training of operators for this work must be done by some competent person and the hosiery after it has been examined and classed should be partially examined so that one is sure that first

quality merchandise as laid out by the examiner is first quality merchandise only.

In the transferring of stamps and boxing this is strictly a matter of neatness and is very important as the customer when opening a box of hosiery, gets the first impression from the appearance of the hose in the box. So at all times see that this work is done with care and neatness.

In conclusion, I can only write that no full-fashioned hosiery manufacturer should neglect having his product examined during and after each operation. To me a perfect silk hose is an article of beauty and many times have I seen beautiful fabric and beautiful dyeing spoiled through some defect in the stocking, which, if it had been seen during the process of manufacturing, could have been rectified. Money spent for examination is usually returned with interest, as after all, the final examination is done by the consuming public and when they are satisfied, then it means more business and greater profits for the manufacturer.

Knitting Arts Exposition, Philadelphia, April 16th-20th.

The biggest Knitting Arts Exposition in the history of the trade is promised by Chester I. Campbell, general manager, in announcing the 24th annual exhibition to be held at the Commercial Museum, Philadelphia, through April 16th to 20th, inclusive.

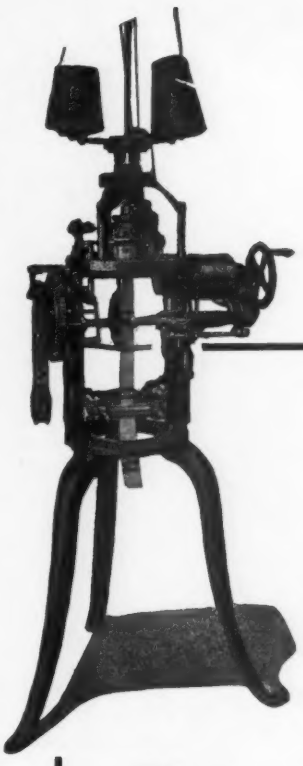
The Exposition which furnishes an annual feature of the convention of the National Association of Hosiery and Underwear Manufacturers, is the big event of the year among the manufacturers and dealers in knitting machinery and equipment and supplies, and yarns, drawing its attendance from every section of the United States and Canada. The convention and exposition provide a connecting link between the three branches of the trade—the manufacturer, the jobber and the retailer—contributing in a substantial way to the general welfare of the whole trade.

Round table discussions and general sessions for the transaction of business of vital importance to the trade will take place in the convention sessions, presided over by President D. L. Galbraith, of Bay City, Michigan. The election of officers of the association will be followed by the annual luncheon Wednesday noon, April 18th, when more than 500 members of the trade will be served, it is stated.

Innovations in equipment to be displayed at the Exposition will include a full-fashioned hosiery machine, which will be operated at the show for the first time. Rayon trade and trade products will have an important place in the exhibition this year. Everything in rayon and silk from the raw product to the manufactured hosiery will be shown, and trade members will view the various processes which enter into the manufacture of rayon and silk hosiery products.

Catalog on Kitson Equipment.

Saco-Lowell Shops have issued a booklet covering the Kitson cotton opening, cleaning, conveying and picking machinery. It describes and illustrates the opening room equipment, condensers, distributors and regulators, pickers, and other equipment made at the Kitson shops. An interesting feature is an extensive list of mills which have installed Kitson equipment within the last five years.



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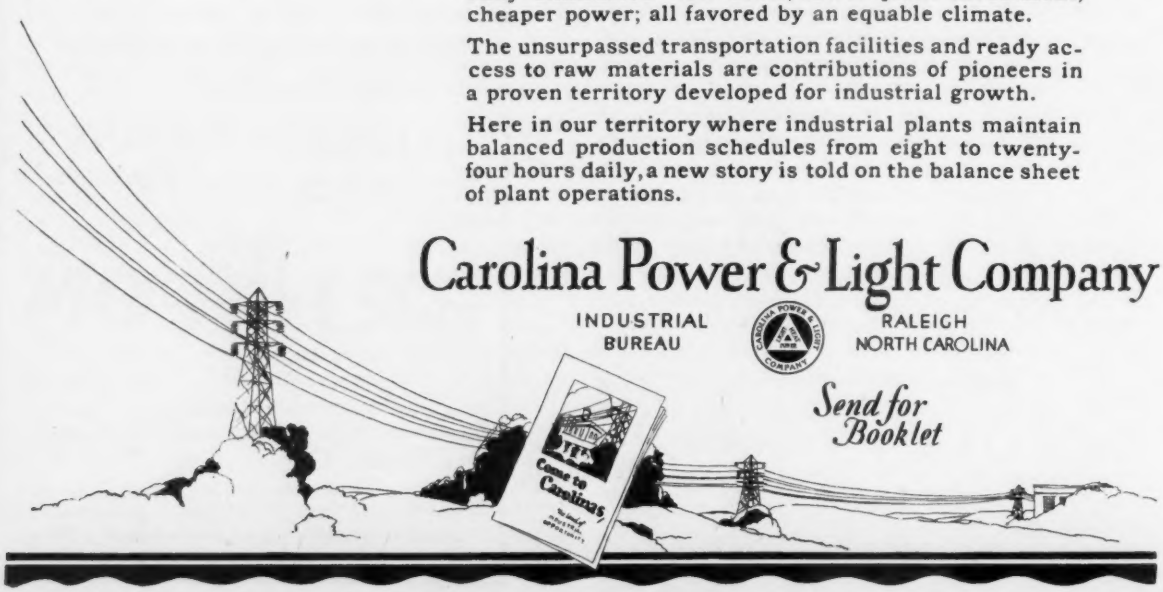


The A B C of Dyeing

The Use of Sodium and Hydrogen Peroxide; Also Permanganate of Potassium in the Bleaching of Mixed Fiber Hosiery.

By NOEL D. WHITE.

PART ELEVEN.

The bleaching of textiles is a branch apart from the dyeing. It calls for special study and training. In all big processing plants it is done in special departments, under special supervision. There are plants even where nothing but bleaching is ever done. I have visited knitting mills in the East where there was nothing but scouring and bleaching tubs and machinery. The bleachers there knew little else, they had specialized on bleaching and even if they knew—they were not required to do anything else.

In the early days of Silk in China, the scouring was a totally different trade than that of the dyers. They had separate shops and did their work independently from the dyers who received their silk to be dyed the desired color when already boiled off and prepared for dyeing.

In a few of the large dye houses where I stopped for a while, the dyers received their goods prepared for dyeing from another department, and the operators in the respective departments became quite proficient in their work, and that of course made the bleachers quite efficient.

I was amused one day while a prospective employer was interviewing me in New York. He asked me if I knew how to bleach silk. He needed a dyer to take charge of his dye house in the East, and I thought it was a large place—so I asked him if he did not have a bleacher for that. He laughed and said: "Why, man, we could not afford a dyer and a bleacher both." I got that job, and will say something more about that place later.

In hosiery mills where they do their own dyeing, and most of them do, they also cannot afford both a dyer and a bleacher. The dyer who takes charge has to do both so he has to be trained to do both jobs well.

Where cotton only is to be bleached that is usually done with a chlorine bleach, but when two or more fibers like silk or wool enter the combination, the chlorine bleach would be disastrous to the silk or the wool. In that case, either the permanganate of potassium followed by a sulphurous acid bath method or the peroxide of hydrogen or sodium bleach should be used. The bleaching with permanganate of potassium is not much used at the present time, partly because it takes quite a lot of experience to do it properly, also because the peroxide bleaching is done so cheaply now that all dyers have adopted it when mixed fibers are concerned. I am also aware that many dyers use the peroxides even when only cotton is bleached as being more easily and safely done, even if somewhat more costly than the chlorine bleach.

To bleach with permanganate, 100 pounds of goods are worked in a bath made up of two pounds potassium permanganate in 300 gallons of cold water for about one hour. This makes the goods turn brownish. The goods are washed from this bath, and the bleach is completed in a second bath made up with sulphurous acid, about two gallons to 300 of water, and worked in the cold bath until bleach is completed. This bath destroys the brownish color left by the permanganate and reduces the natural color of the fibers to a beautiful bleach. After this the goods are washed thoroughly, soaped, blued and finished.

The sulphurous acid bath can be replaced by a bath containing seven gallons of sodium bisulphite solution standing at 32 degrees twaddle together with six pints of sulphuric acid, and worked the same way as with the other bath. Results are quite identical.

In bleaching with peroxide of hydrogen the bath is made up for 100 pounds of goods with the proper amount of peroxide of hydrogen. There are several different strengths of this peroxide in the market today, ten volume strength up to thirty volumes or more, so the amount must be regulated by the strength of the peroxide on hand. For the ten volumes 30 per cent to 300 gallons of water is needed. For the higher strength reduce accordingly; 10 pounds of silicate of soda is added to the bath, then bring the bath to 130 degrees F., add the peroxide of hydrogen, stir well and enter the goods for an overnight bleach.

If a peroxide of sodium bleach is preferred, the bath is prepared with 15 pounds of sulphuric acid in 300 gallons of water, 10 pounds of sodium peroxide is slowly sifted in this bath with continuous stirring, and then the bath must be tested with litmus paper and kept preferably on the alkaline side. A little addition of acid or peroxide can be made to bring the bath to the proper alkalinity. Usually the test shows a little acidity, and all that is needed may be a little more time and stirring, the peroxide not being completely dissolved. Steam is turned on just previous to starting the sifting in of the peroxide, and left on until the right temperature is attained. When the testing with litmus paper is judged to be correct, 15 pounds of silicate of soda diluted with boiling water is added to the bath and stirred well. The goods may now be entered, the bath brought up to the desired temperature and the steam closed. For an overnight bleach 120 degrees to 130 degrees F., is sufficient for good and even results.

Steam in both cases must enter the bath through a closed lead pipe. Vats must be wood or lead lined. No iron must in any way contaminate the bath. Tacks, nails and any piece of iron accidentally dropped in a peroxide bleach bath is sure to cause damage to both bath and goods. Water should be soft and free from iron for good results.

To understand the nature of this bleaching it is enough to state, without the frills, that it is the oxygen liberated in the bath that bleaches the goods. The heat sets it free and active. The hotter the bath, the quicker it is in its action. That is the reason I stated above to warm the bath at 120 degrees to 130 degrees F., for an overnight bleach. In the daytime a bleach should be done in from

three to five hours, and the heat increased accordingly. Usually for a five hour bleach 150 degrees F., is sufficient, and if pressed for time raise to 160 degrees F., and in three hours a good bleach is obtained with either sodium or hydrogen peroxide. The goods are now washed in three warm waters, soaped and finished.

All bleached goods are not a clear white, but have a creamish tint. A good bleacher's blue is necessary to produce a good white, and is added during the soaping operation, or in the finishing bath.

As we are now describing hosiery bleaching, the best way is to select a good blue, or several for the different fibers, to use in the soap bath. This writer has yet to find a blue that goes on all fibers alike, so my advice is to get one that goes on the cotton best, then add a little alkali blue for the silk and use both until a good match on both fibers is obtained. In the case of artificial silk a little Methyl Violet 2B will also serve very well in connection with the others.

The best way to use these dyes in bluing is to dissolve one once in a gallon of boiling water for each one of them for a standard solution, then use ½ pint or more of the needed ones and strain them in the soap bath at 100 degrees to 120 degrees F.—no higher temperature is necessary for good work, and should be done in 20 or 30 minutes, using 3 per cent of a good olive oil soap.

The dyer should be able to learn to take the right amount of the bluing dyestuffs from the stock solution so as to get the same shade of white at one time, or no more than two times, but addition of one or more blues can be made at any time in the soap bath without injury. The bluing concluded, the goods can be finished in a bath slightly acidified with acetic acid to bring out the alkali blue.

A stocking taken for matching should be washed in water with a little acetic acid in it or results will not be equal because the alkali blue will not show up unless acidified in the washing.

This way of bleaching with peroxides is very simple, yet it has been brought to my attention that there are dyers who do not seem to understand it, and cannot get good bleaches even when shown how to do it. One instance I wish to relate was in that mill in the East where I was sent from New York, and did the bleaching for a number of years. When I left, my successor could not get the same results. When I returned after a time, and went to visit the superintendent he told me he could not understand why their new dyer could not get the same results. That fact was confirmed to me by a demonstrator who came here from the East to take over the southern trade for peroxides. Upon hearing that I had come South from that place he asked me how I bleached their goods. I told him. Then he told me how he had been sent there to instruct the dyer, and after giving him complete instructions for a period of one week, had left only to be called back again after a few days because the bleach was not right yet, and they thought their dyer must be a hopeless dumb-bell. I could have told them what was wrong there; that dyer was as good and capable a dyer as any other but he did not understand the water they had there, nor their filtering system.

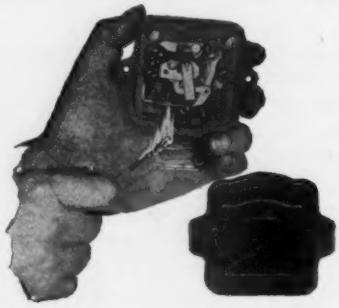
They used water from a small river, and they had a filter not to soften the water but to take out the vegetable matter that colored the water on its course down to the sea. That was done by coagulating the matter in the water with sulphate of aluminum, neutralizing the acidity of the alum with salt soda and filtering out, through a six foot bed of sand, the suspended matter. The resulting water was clear as crystal and soft. But—there was a manufacturing machine shop a few hundred yards up the river, and they had a lot of iron pickling done in that shop, and once in a while they let loose a lot of their pickling solution; when they did that the river water was contaminated so badly that it upset the whole regulation of that filter for some time.

It took me a long time to find that out and to arrange accordingly. Nobody can expect a new man to know all the disadvantages a mill has or may have in a short time. The superintendent knew of that situation, but I had taken care of it for so long he had forgotten it existed. That was the cause of his poor bleaching, and that dyer was accused of not knowing his business; of course he did not last for very long.

Next I will describe the different ways of using chlorine in bleaching cotton.

A New Automatic Circuit Breaker on "U. S." Grinders.

A useful device on electric grinders has recently been introduced on the 7-inch machines made by the United States Electrical Tool Company, Cincinnati. This is a new type of starting switch. When the lever is thrown to the "on" position, a small dog holds the current on until overloaded or tripped by hand. The automatic overload device is carefully calibrated, and will trip only within the limits specified by the underwriters. The switch is also



very simple, it is explained, there being no springs or complicated mechanism; and it is durable and thoroughly insulated. The casing is made of moulded Bakelite, and is designed not to crack or crumble under severe usage. The lever also is of Bakelite, thus protecting the operator against shocks. The holding screws are concealed, thus preventing tampering without detection.

Fafnir Opens Office in Atlanta.

A. C. Laughridge, who has for several years represented the Fafnir Bearing Company, New Britain, Conn., in Georgia and Alabama, has opened an office for the company in the Bona Allen Building, Atlanta, Ga.

Joins Stein, Hall Southern Force.

Walter C. Pinkerton has become associated with the southern office of Stein, Hall & Co., Charlotte, N. C. He is representing the company in North Carolina, on their line of starches, dextrines, etc. Mr. Pinkerton is a graduate chemist, having attended Pratt Institute.

What Is Proper Temperature for Knitting?

EDITOR COTTON:

I would be very interested to see in your knitting department a discussion as to the proper temperature for the knitting room of a full-fashioned mill. I might say that we use the Johnson temperature control and have been maintaining a temperature of 78 to 80 degrees. While in conversation with another man recently, he expressed the opinion that this temperature was too high for the operatives and the work, and that it would have a tendency to dry out the silk, especially on the leggers while it was in the process of knitting.

I would be glad to have some opinions from your readers as to this point, and also to have them give any other information with reference to the proper temperature for full-fashioned knitting rooms which they feel would be of interest. CONTRIBUTOR No. 3061.

"Construction of Full-Fashioned Hosiery."

A Reader Raises a Point Concerning Article on this Subject Published in February. Here is His Inquiry and the Reply of C. H. Baxter, the Author of the Article.

Editor's Note—We are publishing below a letter from a regular reader of COTTON commenting upon some points in the article "Construction of Full-Fashioned Hosiery," by C. H. Baxter, which appeared in the February issue. Following this letter will be found the reply of Mr. Baxter to it. These letters are used here for the information of other readers interested in these points.

EDITOR COTTON:

I have read with much interest the article in the February number of COTTON by C. H. Baxter entitled "Construction of Full Fashioned Hosiery." I do not know Mr. Baxter but I am quite confident, judging from this article, that he is a very able full-fashioned knitter and knows what he is talking about. I as a beginner in the full-fashioned field would not be so presumptuous as to criticize any statement which he might make, but I have one or two questions I would like to ask, "for information." I quote from his specifications of a 42-gauge stocking as follows, "I find that if a dainty heel is wanted a 128-needle instep will give a heel that is not too broad." "The heel should be made two and three quarters inches long from the beginning of the heel to the loose course in the heel." "My experience has shown me * * * that 260 needles is the proper width for 42-gauge footer." "On the 42-gauge footer, the instep should also be 128 needles and the sole on each side interest. CONTRIBUTOR No. 3061.

We invite our readers to make use of this departmentfor the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any partcular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

I judge from this description, since there are 128 needles in the instep of both leg and foot that the inside of the sole will line or square with the beginning of the heel tab. If this is correct, then how can two and three quarters inches of heel tab be topped on 66 needles of footer with 28 needles to the inch?

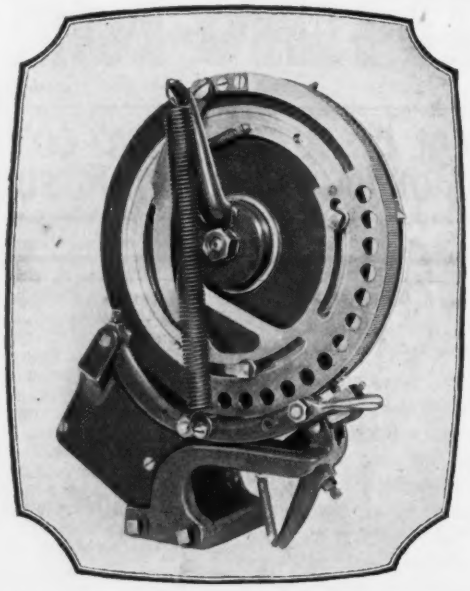
Stated in another way, 128 needles in the instep of the leg is equal to 4 4/7 inches plus two heel tabs of 2¾ inches each, makes a total of 10 1/14 inches which is to be topped onto a footer containing 128 needles plus 2 x 66 or a total of 260 needles which measure 9 4/14 inches.

The question I wish to ask is this, should not the length of the heel tabs be the difference between the number of needles in the instep of the leg and the total number of needles in the foot? In this case, 132 needles, which is 4 5/7 inches for two heel tabs or 2 5/14 inches for each tab instead of 2¾ inches. CONTRIBUTOR No. 3062.

EDITOR COTTON:

I am glad "Contributor No. 3062" has raised the question as to how a heel 2¾ inches long can be topped on 66 needles in making the foot of a stocking, as per my article, entitled, "Construction of Full-Fashioned Hosiery," published in the February number of COTTON.

I appreciate and want to take this means of thanking the reader for bringing this to my attention. In re-reading this paragraph, I believe I have written this so that it might be misleading to some, who are interested in the construction of hosiery. I stated in the article that the heel should be 2¾ inches long from the beginning of the heel to the loose course, but failed to state that the beginning should be the topping point. After reading the question, I realized that on some makes of knitting machines, the piece of fabric, which is wasted by the topper when topping the stocking on the transfer bar, is attached to the splicing and is not separated.



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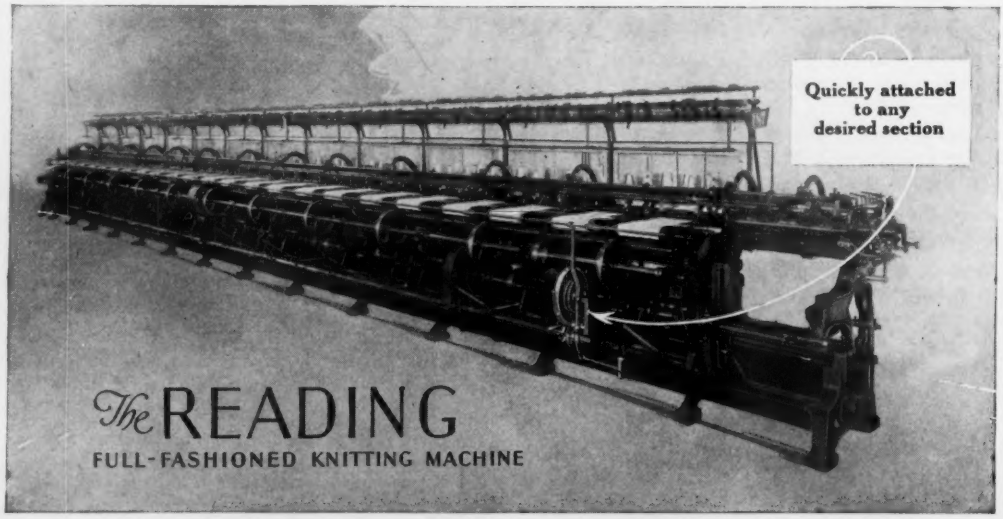

In other words, for the past few years, on the makes of machines I have been operating, the piece of fabric wasted by the topper is knitted in a similar method as used in making a split foot. The only difference in making this piece as against a split foot is that it does not lock the stitch as when making a lockstitch or cross stitch in the foot of a cotton sole style number. In making hosiery this way, it is necessary to measure the heel from the topping point and this is what I should have explained in my article. As the topper usually requires about one-half inch of fabric for topping, I should have stated that if one measures from the beginning of the heel and not the topping point, the heel should be 2¼ inches long.

This explanation, however, does not answer the question as to how a 2¾-inch heel can be topped on 66 needles because even at the topping points, the heel is still 2¾ inches long.

In the first place, the reader who raised this question must bear in mind that in topping a heel, that the heel is not topped on the needle stitch but is topped on the so-called wale stitch and in constructing a hose, one must to a certain extent, determine the number of courses per inch made in the heel and disregard needles entirely. The principle of topping is that each transfer point should go through each wale stitch at each course, but no topper can do this and at the same time keep up with the production.

If the reader will take a transfer bar on which a stocking has been topped and examine it, he will see that there are many places where two wale stitches or courses are between each transfer point.

Technically speaking, the length of the heel should be as follows:

If a heel is made, we will say, 42 courses per inch, then 42 needles are required for topping an inch of the heel. If such was the case, then the heel would only be made 1½ inches long. This, I believe, will show the reader how utterly impossible it would be for any topper to top a stocking with a heel only 1½ inches long.

My own experience in connection with making the proper length for heels, so that the topper can top them on properly, is to make the heel on the long side, as when making the heel too short, it causes the topper to place one wale stitch between two transfer points and this always makes a double loop and a mender in the sole of the foot. It is always much easier to top on a stocking where the heel has been made a little long.

I have always, therefore, taken as a basis for determining the length of the heel, the number of needles by inches that the heel must be topped on plus about ¼-inch longer to give the topper enough length so that the heel does not have to be stretched.

I will say, however, that where a heavy heel is made, which means less courses per inch in the heel, because the heel must be made looser to take care of the extra heavy material used, that one should make the heel a little shorter as when such a heel is creased, the crease line is much heavier and shows up the wale stitch more plainly. A topper then does not require such a long heel because then there is a better chance for the topper to place only one point between each wale stitch.

I trust I have explained this plainly to the reader who has raised this question; also to others who might have been misled on this point when reading my article, and hope that your readers now understand this thoroughly.

C. H. BAXTER.

Operating and Adjusting Scott & Williams Model H H Knitting Machines.

EDITOR COTTON:

Until recent years all rib work was made on machines designed to knit rib work only. It was impossible to knit in a heel and toe on the same machine. This of course made it necessary to transfer the fabric so knit, which was usually a top in connection with hosiery, to another machine called a legger or footer. This operation of transferring requires a considerable amount of skill to perform it properly without having drop stitches and other defects. In some localities where help is rather scarce it is very often a difficult matter to get sufficient help of the proper kind to get this transferring done efficiently, which naturally placed quite a handicap on this class of work. This condition also made it necessary to pay very high prices. As a consequence of these influences there was an opening, born of necessity, which is most always the mother of invention, for a machine that would knit the rib top, do its own transferring, and then complete the leg and foot on the same machine without the human element entering into the operation except to watch the yarns, set the machine and inspect the stocking when completed and dropped into the container. Scott & Williams brought out the Model H H (Half Hose) machine to fill this demand. Thinking there may be an opportunity to help someone with problems on this machine, I will endeavor to give, through "Knitting Kinks" from time to time, some of the experience and knowledge gained through work on and experience with these automatic half-hose machines.

I will start at the beginning by describing each operation in its regular order. The H H is equipped with a latch opener, which to my knowledge is not found on any other machine except the Scott & Williams Model R I (Ribbed Instep), which is similar to the H H in that the rib and plain fabric are knit on the same machine. The function of this latch opener is to open every latch as the needles are rising up over the left side cam No. 9319. It is controlled entirely by cams placed on the main drum. I will discuss the fine points of this device later on.

The latches are opened at the very beginning of the stocking, which in conjunction with the cylinder jacks and auxiliary slide cam makes possible a set-up on the bare needles without a runner or drop-stitch. During this set-up the dial needles take on one course of yarn and are then withdrawn into the dial. When this set-up is completed the welt or small hem is made on every other cylinder needle. For instance, if the machine contains 200 needles this welt is knit on 100 or every second needle. The auxiliary slide cam keeps the cylinder needles without jacks under them passing under the right hand stitch cam, and they do not take on any yarn until the rib top is completed. When enough fabric is made to give the desired length in this inturn welt, the dial needles are again put into action in the space where the jackless needles are kept down out of action as stated . Remember, these dial needles each has a stitch which was placed there when the set-up was made on the bare needles. These stitches are

now used to tie in the welt or hem and makes a very complete job. The dial needles are kept in action and knitting is being done on 100 cylinder and 100 dial needles and continues until the proper length top has been made, at which time the stitches on the dial needles are automatically transferred to the jackless cylinder needles as they are brought up into action for the balance of the stocking which is knit in the same manner as any plain Scott & Williams legger or footer would do after the rib top has been transferred to the cylinder by a boy or girl in the original way of transferring and knitting.

I will now discuss some of the common difficulties encountered in the operation of the H H machine, giving what my experience has shown to be the remedies for them.

Cutting in the Welt.

It is sometimes found that a machine will cut or break the stitches on the last two inches of the low butt or first half-inch of the high butt cylinder needles. This is caused by the center sinker cam going into operation too soon, which makes the saw-tooth sinkers break these stitches. The remedy is to make a longer cam for the drum, which will delay the withdrawing of the center sinker cam, at the finish of the welt, until the yarn is laid over the first high butt dial needles.

Tuck Stitches in the Rib Work.

There are several causes for the tucking of stitches in the rib top. The rib stitches are of exactly the same formation on the Model H H as the old style rib frame, however, they are formed by a different process. They are carried out over the lower half of the dial needle, as used in the H H by the upper half. These two parts are known as the cast off, which is the upper half, and the grooved hook which is the lower half. When the cast off drops the completed stitch over the grooved hook it becomes necessary to use some means to push this stitch down and hold it so. This is done by what is known as the saw tooth sinker. When the teeth on these sinkers become dull or pressed down by coming in contact with the dial they do not catch into the work properly and the rib stitches are not pushed off the dial needles, allowing two or more stitches to remain on the dial before they are cast off.

It is very necessary that the dial be kept perfectly centered and lined up at all times to prevent the damaging of the saw tooth sinkers as mentioned. If this is not done the sinkers do not come directly under the groove provided for them, which not only damages the sinkers but also allows insufficient room or clearance between the cylinder and the dial for the rib work to pass, resulting in tuck stitches on the dial needles. The saw tooth sinkers are withdrawn at least 1/4-inch over and above their normal draw, by withdrawing the center sinker cam in a like manner, which permits the sinker to get a better grip on or in the rib stitches. If the rib knocking over cam spring is not strong enough or the cam itself is sticking for any reason, the stitches will tuck.

Sometimes the hook on the cast off gets curled up, by the cylinder needles, while making the transfer, resulting in tuck stitches or again, the hook of the cast off may be going on the outside of the groove in the lower hook with the same result. When fitting up a new grooved hook or cast off, particular attention must be paid to the distance between the hooks. They should not quite touch as they pass each other. An excessive accumulation of dirt or lint in the groove in the inside sinker ring, a bent slot in either the inside or outside sinker ring, a bent sinker or a broken one will result in tucking. The remedies are very plain: remove the dirt or lint which gets packed very tightly in the groove of the sinker ring, straighten all slots or sinkers and replace any broken ones. The slots under the dial should be kept very smooth as any rough place thereon will retard the work from passing down between the dial and cylinder.

There is one last resort for preventing tuck stitches if all other remedies fail. On some machines the cast off will be found to drop the stitch too soon and it will fall right in the groove hook rather than over it. This is caused by the cast off coming out before the grooved hook has been withdrawn far enough to miss the stitch as it is dropped.

To overcome this condition it is necessary to grind a little out of the rib knitting cam No. 9529, as indicated in the sketch at Fig. 1. Great care should be taken not to get the angle at *B* too steep or the dial needles will break as they pass out around this end of the cam. The cam

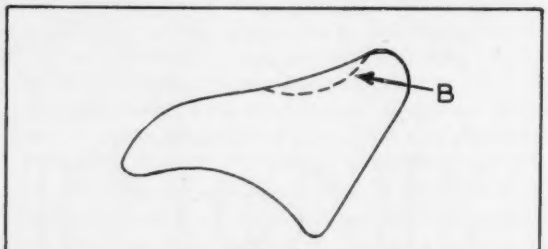

FIG. 1

should also be polished well before it is placed back on the machine after grinding, also oiled well. The machine should be turned by hand until the rib work is started after replacing the cam. This precaution often saves a very bad smash which not only takes a lot of time to repair, but is also expensive.

If an approximate distance of 1/16-inch is maintained between the cylinder and dial with rib work on the dial at the time the distance is checked, and the points mentioned are okeh, there should be no further trouble with tuck stitches in the rib work on the top.

To check the distance between the cylinder and dial, knit about 1 to 1½ inches of the top fabric, stop the machine, place a screw driver under the cylinder tube adjusting bracket No. 6253, and raise the cylinder up and let it drop. In this way the distance can be ascertained very accurately.

Drop Stitches at the Transfer.

A machine making tuck stitches in the slack course fabric will drop stitches at the transfer. The slack course fabric is made by allowing the left side sinker cam No. 9280 to come in and bear on the saw tooth sinkers in addition to the rib knocking over cam No. 9275. The extra pressure exerted in this manner makes a very loose stitch about four courses before the transfer is made. In testing a machine the drum should be slightly advanced at the beginning of the rib work so that the entire top is made of slack fabric. If tuck stitches result, the adjustment of the rod controlling the center sinker cam should be observed to see that the cam is held all the way out when the thrust rod controlling it is on the 1/8-inch high cam. If this is correct it will be necessary to relieve the rib knitting

cam slightly as shown in the sketch, Fig. 1, for the prevention of tuck stitches in the regular rib work.

The reason for dropping stitches where a tuck stitch is on the dial needle is explained in the sketch, Fig. 2, the dial stitches being drawn narrow so that the space for the cylinder needle to protrude through it is very narrow as compared with a clean stitch. In this drawing, *A* indicates the cylinder needle; *B* shows the dial cast-off; *C* shows the cylinder needle ready to transfer into slack course with a clean stitch; and *D* indicates the tuck stitch. *E* is the dial grooved hook.

If the dial is not properly lined over the cylinder needles, the cylinder needle will go to one side of the dial stitch as it is projected to allow the lower needle to enter. When trouble is encountered only with the first long butt

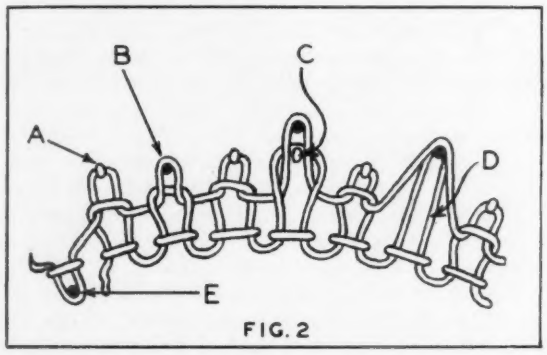

FIG. 2

cylinder needle dropping the stitch, the needle should be bent slightly back and towards the front of the machine when it is at the transferring point. Each No. 1 cylinder needle giving this trouble will require individual treatment as they cannot all be bent exactly alike for the same result. All cylinder needles, other than the No. 1, should be kept very straight and in a good line for the best results in the transfer.

The needle presser No. 9431 should be set so the jack cylinder needles are pushed out slightly during the transfer, which will aid very materially in making the dial stitch larger for the jackless cylinder needles to pass through as they are raised to take the stitch off the dial needles. The time the jackless cylinder needle enters the dial stitch is a very important factor in making a perfect transfer. This can be timed by moving the transfer cam No. 9325 forward or backward as the particular machine requires. Usually well back gives very good results.

Setting Auxiliary Pawl Controlling Link.

The auxiliary pawl is taken out of action at the beginning of the rib work. This is controlled by the chain links with the lugs on the left-hand side working in conjunction with the auxiliary pawl controlling lever No. 5224, which holds the auxiliary pawl No. 6262 out of action from the beginning of the rib until four courses before the transfer, at which time it goes into action to advance the main drum for making the slack course fabric. The controlling wire should be set so that it will hold the auxiliary pawl out for enough to miss the tooth plate when the controlling lever is on the lugs on the chain links.

Drop Stitches Going Off Heel and Toe.

If the gap closer ring does not close the gap completely or the end is bent out, if the needles are badly out of line in the long butts or the gap closer ring is rough at the point where the needles are pulled down by the switch cam, they will all cause, or any one might result in the dropping of stitches in the long butt side. Check up on the following things at the point where the needles are lowered by the switch cam and the switch cam leveling cam. Have the gap closer ring perfectly smooth. Have just enough space between the bottom of the ring and its seat in the latch ring for the gap closer ring to reciprocate freely as the machine goes on and off the heel and toe. See that the inside

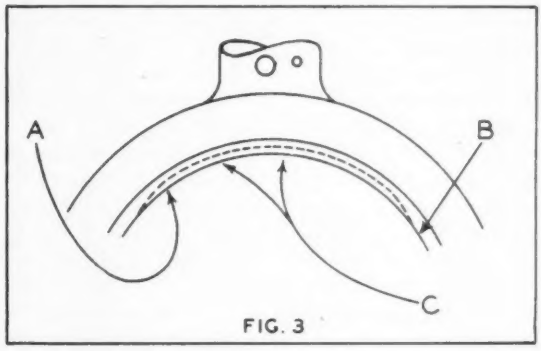

FIG. 3

of the latch ring which forms a seat for the gap closer is filed back at least 1/64th-inch. This will allow the bottom of the gap closer to project slightly over the latch ring at this point. See Fig. 3. Referring to this sketch, *A* shows where to file back for drop stitches in the long butt needles. *B* indicates the gap closer ring seat. *C* shows where to file for drop stitches in the short butt needles.

If the gap closer is rough or grooved, from contacting with the needle latches, if there is any space between the gap closer and latch ring, or if the latch ring projects out beneath the gap closer at the point mentioned, the latches will catch on any one or more of these places and as the needles are being lowered by the switch cam the top of the needle is forced in towards the center of the machine, because the end of the latch is caught, causing the latch to close and consequently drops a stitch at the point where the yarn should be taken in the hook for the next stitch.

Sometimes, if the switch cam leveling cam has too steep an angle it will drive the needles down below the

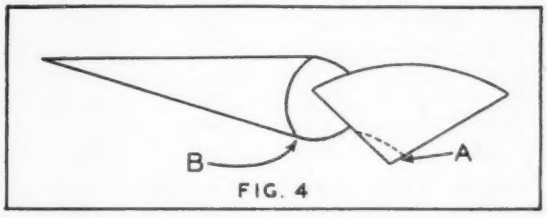

FIG. 4

normal race of the cam and leave room enough below the latch ring for the latch to close as the needle is driven down. A needle without sufficient friction will result in the same thing. The cam should be beveled as is shown in Fig. 4 Care should be taken not to shorten it at *A* so that the needles contact on the dividing cam. Another cause is the ends of the high butts bearing on the switch cam at *B*, causing them to snap down too far. This should be beveled to clear the high butt needles.

Drop Stitches in the Gore.

Assuming the needles to have sufficient friction on them

and being in perfect line the suggestions made concerning the smooth gap closer ring, space between the gap closer and the latch ring, and the fact that the gap closer must project slightly over the seat on the latch ring are applicable to drop stitches in the gore, except they must be checked at the point where the short butt needles are lowered by the down pick to narrow the heel and toe. If the gap closer is examined it will probably show marks made by the latches as they are lowered by the down pick. These marks must be smoothed religiously until they are all removed. Also see that the gap closer covers completely the gap in the throat plate opening or the latches will close at this point and drop the stitch when the short butt needles are lowered to the knitting level again.

Cut or Broken Stitches in the Gore.

Bad needles or sinkers should be the first place examined for these broken stitches. If needles and sinkers have been examined or replaced by new ones and the trouble still exists, see if the right and left sinker cams are smooth. Also make sure that the sinker cams are properly set. This is very important as the position of the sinker is extremely essential to the proper formation of the stitch. The sinker cam should be set so the sinker throat is brought into the back of the needle, which will be approximately 1-8-inch

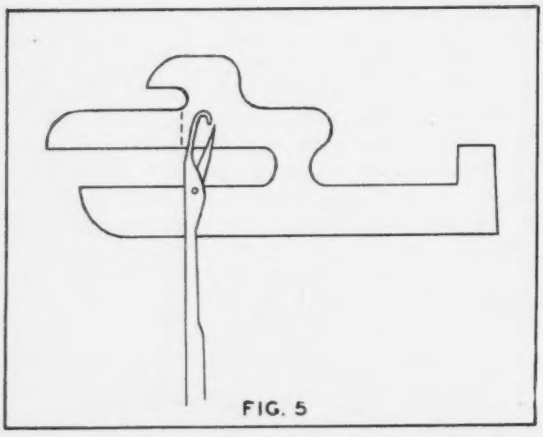

FIG. 5

from the inside bore of the sinker cap. The circumferential adjustment of the sinker cap is also important. The bumper screw should be set so the sinker is all the way in when the head of the needle that is raising is on line with the bottom of the sinker throat as indicated in the sketch, Fig. 5. This will also give the correct distance for the double sole slackening cam to be brought into action without having the sinkers come under the yarn at the knitting point.

Have as little tension on the heel and toe at the disc tension No. 8038 as is consistent for the yarn take-up to function properly and not loop or throw off in the heel or toe. If a yarn is caught or caused to pull hard for any other reason it will make the stitches tight and cause them to break or cut.

Concaving the stitch cams also helps this trouble sometimes as it relieves the strain somewhat as the stitches are being formed. See Fig. 6 on how to concave the cams.

Stitch cams are usually concaved more or less when they come from the factory, so one should be very careful in performing this operation as the cam can be spoiled very easily if not properly ground. A small emery wheel about two inches in diameter should be used for the grinding, which should not extend more than 5/16-inch up on the cam and not more than approximately 1/32-inch in depth at the deepest point. Great care should be exercised not to grind the extreme point of the cam back any at all, the concave should end right at the end but not take any

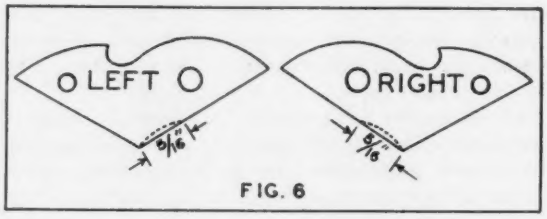

FIG. 6

away. If the upper end of the concave is more than 5-16-inch from the point of the cam, the needles will ride so high on the cam that the latch will close on the thread as it is fed to the needles, and more trouble will result than before the grinding was done. Also, if the concave is made more than approximately 1/32-inch deep, too much strain will be placed upon the needles, which will either break them or damage the cylinder walls, necessitating the cylinder being taken out of the machine and a new wall put in, which is an altogether unpleasant task.

The needles must be kept properly lubricated, also the sinkers, or the stitches will break and cut. Keep the oil bottles filled with a very thin oil, which will carry in with the yarns and aid very materially in the elimination of this trouble.

Rough sinker, stitch or end cams will increase these cuts or breaks, therefore, they should be kept very smooth, which will not only help this condition, but make a very much better appearing stocking as a whole.

This will conclude my first letter on the H H machine. In another communication I hope to be able to point out some further operating troubles and their remedies.

CONTRIBUTOR No. 949.

Compressed Air for Cleaning Circular Knitting Machines.

EDITOR COTTON:

Our seamless knitting department is equipped with compressed air to clean and blow the dirt and lint from all of the Scott & Williams and Banner knitting machines. This has proven to be the best way we know of for cleaning the sinkers, but it makes for waste, and at least one stocking from each machine is compelled to soak up the black oil, grit and blown lint. Some other arrangement may be in use that would assist us in our problem. Some people may be using a vacuum system, and if so, we will appreciate knowing something about its success.

In any case, I shall appreciate a discussion by readers of the "Knitting Kinks" department as to what they have found to be the best method for cleaning knitting machines. With reference to the compressed air method, I should appreciate comments as to advantages and disadvantages of this method, and any suggestions from readers who are using it that may aid us in connection with its operation.

I would also be glad to have any readers outline any

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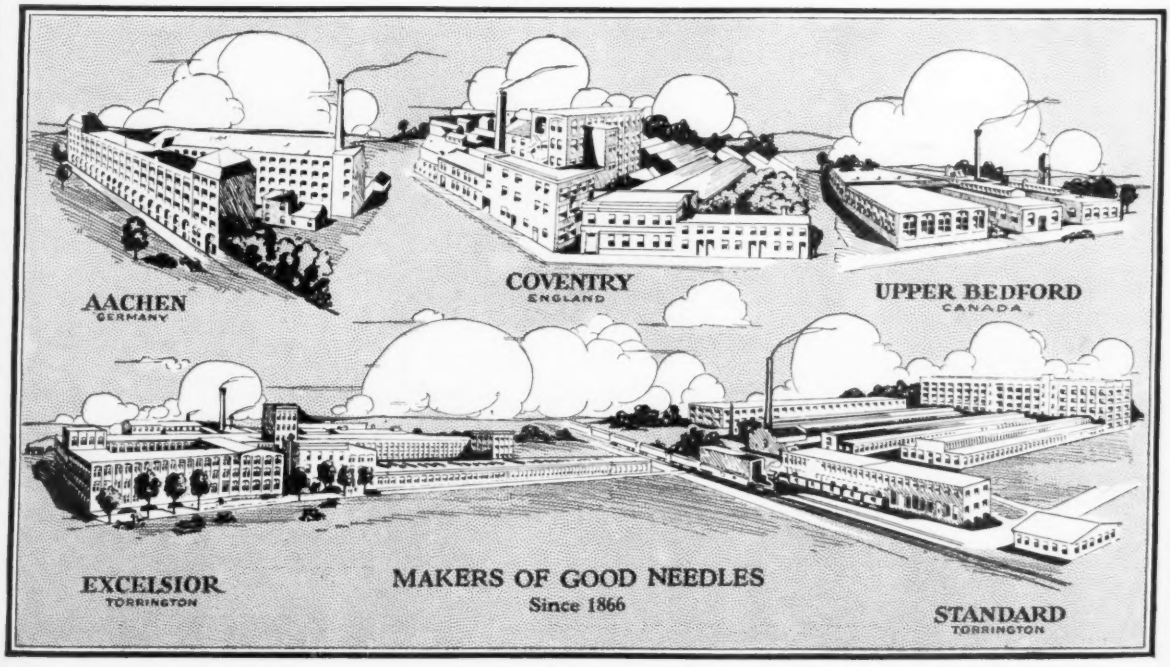

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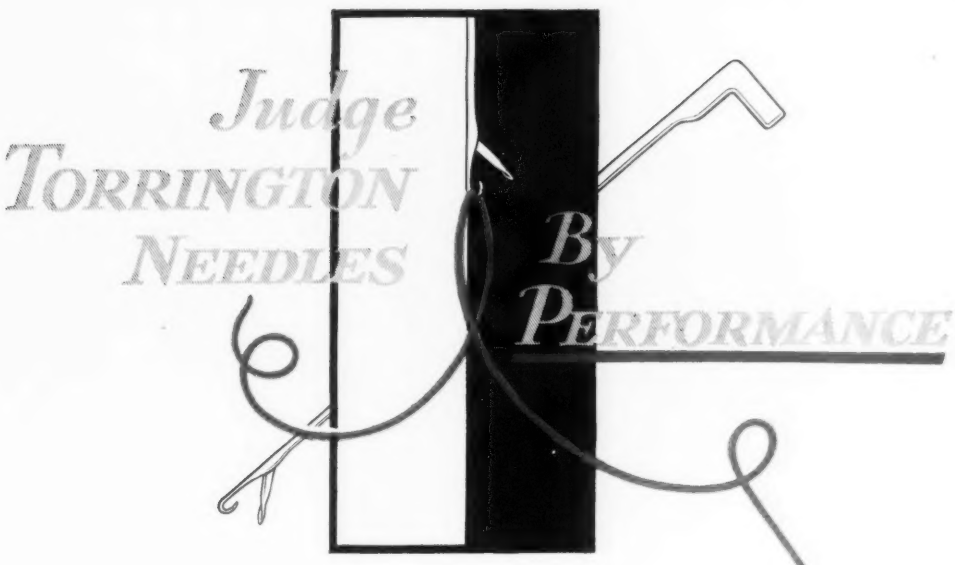

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other methods of cleaning, including vacuum systems which may be in use.

CONTRIBUTOR No. 3051.

Spots on Ladies' Hose.

EDITOR COTTON:

We are having difficulty with ladies' hose, with spots appearing in the goods. We are de-gumming these hose with a good grade of de-gumming oil and 2 per cent of tri-sodium-phosphate. We then give them two warm rinses, the first for about fifteen minutes with the water at about 135 degrees F. and the second for about 10 minutes with the water about 120 degrees F. The hose is then taken from the machine and extracted, shaken out and put back into the machine and dyed.

In dyeing, the bath is brought to a boil in about 20 minutes, and as soon as it reaches the boiling point the steam is shut off and the bath let to stand for about 15 minutes. We are using a good grade of soluble oil in the dye bath, and hard water is used in both the de-gumming and dyeing.

We have this trouble only at times. Sometimes the spots are not noticeable for three or four months.

C. K. (WIS.)

A Modern Hosiery Stock Room.

EDITOR COTTON:

In making full-fashioned hosiery, particularly in view of the delicate shades and the nature of the work, it is essential that the greatest care be taken in handling the finished product. The fact that market conditions cause the mills to carry larger stocks of the different colors and styles has increased the problem of storing the finished goods. In this connection, I thought a description of the plan we have worked out for this purpose would be of interest to your readers. We have a very complete and roomy stock room now, and I will tell you how it was developed.

The origin of the stock room was the building of some hosiery trays to handle the work in the finishing room. (One of these trays can be seen in the foreground in Fig. 2.) These trays are 34x34 inches, made to accommodate ladies' hose stacked cross-wise. They are made of birch boards, with double glued joints, with 1½-inch dove-tailed spline at two sides running at cross-section to the boards. These trays are finished the same as a hard-wood floor, filled and sanded, shellacked, varnished and waxed.

On the first trays we built, we glued the splines, and when the boards expanded or contracted the tray warped. After this experience we fastened the spline at the center with a counter-sunk screw so the boards could expand or contract in either direction and slide on the spline.

For storing the goods, we then decided on the hosiery cabinets which are shown in Fig. 1, using the same trays for shelving in the cabinets, placing the brackets for the shelves four inches apart so as to adjust the space the desired amount. These cabinets, while very satisfactory, were pretty expensive and did not accommodate sufficient stock for the space they consumed, so we conceived the idea of one big cabinet or stock room with a frame work for holding the trays or shelves.

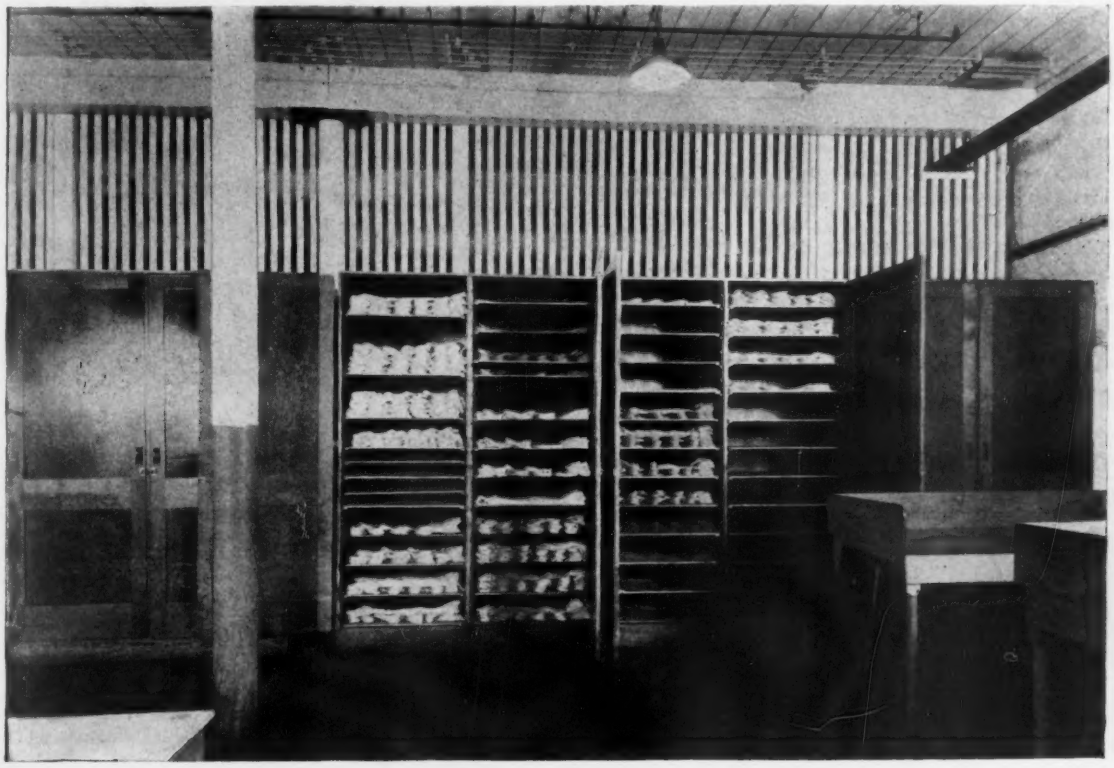

Fig. 1. This shows the original storage cabinets with trays in place.

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BEAUTY may be only skin deep yet a pretty face still exacts its reward of admiration and attention. Your package is the face your hosiery puts forward to strangers . . . in the show window . . . on the shelf . . . in your advertisements. If that face is beautiful, it too will win the admiration that is the world's tribute to beauty.

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Fig. 2. The 36x36 tray used is seen in the foreground of this picture, which shows the sections of shelves and the special stacker used for filling and unloading the bins.

We built five sections of frame work, twelve feet high and long enough for nine shelves. This gives us 540 spaces. The idea in making it twelve feet high was to make twelve 1-foot spaces. This will accommodate three colors or four sizes to a color. A view of this stock room is shown in Fig. 2.

For reaching the upper shelves in the racks, we secured a Lewis-Shepard piler or stacker which has a platform on it fitted with rollers. By means of an elevating motor, the stock room man moves this platform up and down to the level of the desired shelf, and rolls the tray into place; by the same method he removes stock from the shelves. The stock room man thus can fill an order by raising the stacker from one section to the other as desired.

The frame work is constructed in such a way that no nail heads are on the inside of the bin. The frame work is finished in the same way as the trays or shelves. . .

With this system our hosiery trays are interchangeable with the cabinets and the stock room.

The stacker is a specially designed portable machine of 250-pound capacity, driven by a half-horsepower motor connected to an electric light socket by an extension cord. It has a roller platform 36 inches long and 30 inches wide for carrying the hosiery tray. A step is suspended from the front of the platform on which the rider stands to operate the machine and load or unload the bins.

If any reader desires further information regarding this system I shall be pleased to furnish it.

T. O. (N. C.)

Need For Chemical Knowledge in Fiber Selection.

EDITOR COTTON:

Most textile mills find it necessary from time to time to change the makeup of their product to conform to the dictates of fashion. Since the advent of artificial silks, with the distinctive feature of each one of them, it has become more or less of a problem which one is the best to use for any particular purpose.

In most cases when it is decided that a different fiber should be incorporated in a new fabric, the manager makes the selection, and when the new fabric is made up it is brought to the dyer or the finisher with instructions as to color or finish desired on it.

Not a thought is given to the advisability of letting the mill chemist or dyer or finisher help in deciding on the selection of the new fiber.

Or, perhaps the boss has run across a lot of yarn at a bargain price, bought and used it, only to find out that it was totally unfit for his particular line of goods.

The writer happened to be in a mill in Pennsylvania when the proprietor of that mill bought a lot of cotton at a bargain. He was going to use it as a filling for narrow ribbon, but that cotton was made for crepe and had a very hard twist in it. When some of it was woven into ribbons and dyed, the edges of the ribbon curled in so badly that it made it look like shoe strings. The cost of straightening out that first lot convinced the boss that he had made a bad bargain, but he could have saved that

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expense by consulting with his dyer before using it or buying it.

But why is it that the management of a mill constantly neglects to consult those men who should, and generally can, advise on such matters as the selection or rejection of new yarns for use in the production of textile fabrics?

These men are supposed to be experts in their line, or they could not hold their jobs for very long. They are the men who give the product of the mill the last touches that make the goods either high priced or mediocre merchandise. They generally keep posted and in touch with any new development in textiles; any new fiber that is brought on the market. It is reasonable to suppose that they investigate as to the possibilities, and to be prepared for any case they are called upon to handle. I know that to be the situation with many of my friends, and yet when the mill decides to start using a new fiber these men are left out of consideration; their cooperation, which under the circumstances should be valuable, is not asked for or desired.

I know of a mill that some time ago decided to put in a line of goods with artificial silk in it. Their line of goods demanded the use of Viscose, as being more appropriate; their dyer would have told them so. Instead, they sought the advice of a salesman for another type, and he persuaded them that his silk was the proper material to be used in their goods. That dyer had a jolly time dyeing the combination that was given him, when it would have been a lot easier and cheaper had they asked him for advice in the beginning.

I believe this is a good and timely subject for the readers of this magazine. It would, in my opinion, be quite interesting to hear what others have to say on this subject, for I know it is vital to both the managers and the dyers and finishers of textiles of all kinds, and I feel confident the editor would be glad to give space to a discussion of this kind for the benefit of the industry.

CONTRIBUTOR NO. 1928.

Fixers and Fixing Methods.

EDITOR COTTON:

After reading "Knitting Kinks Handbook No. 1," by Harry Miller, and then the criticism in the November number of COTTON signed "Pete (N. C.)," who seems to be "rearing" for an argument, I just have to say something or else blow a fuse. "Pete" says he is letting off some steam, and I am going to agree with him, but I have discontinued the use of old crude steam plants and have a modern hydro-electric plant that is full of arguments—and here goes.

The first thing "Pete" jumps on is Mr. Miller's remedy for shears not cutting at the yarn change on the Model K machine. Mr. Miller says that if the shears cut off before the thread gets under them, that the trouble is generally due to the shear drum cam being too short or a burr on the face of the dial catching the yarn and holding it, causing it to get to the shear blades too late. "Pete" comes along and wants to be told when this drum cam got too short, and states that the chances are 99 out of 100 that the machine having trouble has been running correctly for weeks and months, for the machine builders seldom send out machines that have not been thoroughly tested before leaving the factory, and they are usually tested by experts who know their business. "Pete" says, when all adjustments are made and tested out, and not until then is the machine ready for shipment. This machine is taken into some mill and is set up and is run perhaps for weeks and months, and some day it is discovered that the shears are closing too soon to cut the thread as they should, and somebody makes an unusual discovery. He finds that the drum cam has become too short. This inquisitive correspondent wants to know how a drum cam can get too short when it is made of iron or steel.

Surely "Pete" was thoughtless in asking this. He should know that iron or steel will wear when it comes in contact with a metal or substance as hard as or harder than it is. Now, keep "Pete" quiet until I get through. He started the argument and I am going to have my say while I am at it. Mr. Miller did not say that the remedy for every machine was to put on a longer cam, nor did he say that the trouble was always a short drum cam. He said the trouble is generally due to the drum cam being too short. Then he states that a burr on the dial will cause the same trouble and I agree with him that one or both will cause the same trouble.

Mr. Miller did not say whether this machine or these machines were new or old, but "Pete" "jest nacherly" had to have them old, and old they are. If they were perfect when they came from the factory, which he insists on, they are not now, for they have been running weeks and months, and any man, who has fixed Model K machines and is gifted with a reasonable amount of intelligence, knows that the thrust bar which opens and closes this shear blade is raised by this drum cam, and that the thrust bar is made of harder material than the drum cam. This thrust bar dragging across the drum cam or cut-off block wears the back edge, which is square when it comes from the factory. This square or sharp edge wears off round and lets the thrust bar drop, causing the knife or shear to close before the yarn gets to the cutting point. Now, I do not claim and Mr. Miller does not say that every time a shear blade closes before the yarn gets to it that the drum cam is too short. Sometimes the brake does not hold and lets the drum kick too far, causing the knife or shear blade to close too soon, but this usually shows up in the make-up or transfer.

Now, where in the world did "Pete" get the idea that the machine manufacturer never makes mistakes or sends machines out that are not right? My experience with factory men may not be as extensive as his, but I have never yet met a factory man who has made good in the mill, although there may be some. The factory goes to the mill, as a rule, to get their road or service men. This assembler or adjuster who is "perfect" knows how to make the machine run through the different operations but very few of them can go into the mill and make fabric on the machine, and I have my first knitting machine to see that left the factory ready to make fabric without having to be worked on in the mill, and if this drum cam was okeh when it left the factory, it will wear when put in use just as a stitch cam or any other part of the machine will wear.

The next place in Mr. Miller's book that "Pete" objects to is where he discusses troubles caused by switch cam off in corner or toe. Mr. Miller recommends the use of a paper shim under the outer edge of the switch cam

Style

In selling textile products style, beside quality is the important factor. It is for this trade, the trade which puts into their product every possible fine quality and then adds the profit building extra of style, that our yarns are made.

From the purchase of the new cotton to the finished yarn, American Yarns are spun and mercerized under one supervision. This supervision and our specialized mechanical process makes a yarn of unvarying uniformity and strength—and the mercerizing gives the beautiful lustre which adds to your product every fine wanted quality, and the "sales-plus" of stylability.

Needless to say the beautiful, even lustre of American Yarns, their strength and their uniformity, are also the result of many years of experience with a huge production of more than 200,000 pounds per week. It is our system, our careful painstaking method and our long experience that give you exactly the same yarn each time you buy.

Another important point is that American Yarns are stronger after mercerizing than before.

It will well pay you to price American combed and carded yarns, all numbers.

Sales Representatives

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E. L. Hicks,
904 Washington Street,
Reading, Pa.

Louisville Textile Co., Inc.,
Louisville, Ky.

H. B. Ketchum, Mgr.,
Export Dept.,
Room 1041 Cunard Bldg.,
25 Broadway,
New York City.

G. C. Ellis,
Fairleigh Crescent,
Hamilton, Ont., Can.

David Whitehurst,
409 Parkway,
High Point, N. C.

R. D. McDonald,
924 James Bldg.,
Chattanooga, Tenn.

G. M. Hamilton,
1273 Pratt Blvd.,
Chicago, Ill.

H. B. Chapman,
Utica City National
Bank Bldg.,
Utica, N. Y.

AMERICAN YARN AND PROCESSING CO.

MOUNT HOLLY, N. C.

bracket in order to tip the cam closer to the machine so as to raise the medium butt needles. This causes "Pete" to have another brainstorm and tell the world that the machine manufacturers produce perfect machines before they are sent to the mill. I have worked on machines that came direct from the factory to the mill, which had screw holes filed out to let the switch cam set in close enough to the cylinder to raise the medium butt needles. The man in the factory had bored the screw holes in the wrong place and did not want to throw away the casting, or perhaps did not want the boss to find out that he had put up a bad job. He files out screw holes and fastens down the switch cam bracket. The chances are that this bracket is not close enough, but is catching enough of the medium butt needles to raise them while new, but when the machine is taken into the mill and put to running, the square or sharp edge wears off and lets the medium butt needles catch on the upper part of the cam face. This would cause the needles to break, and when needles break, waste is made.

"Pete" says if he caught one of his fixers putting a paper shim under the switch cam bracket he would fire him at once. He further states that he would replace this switch cam with a new one, which I admit is the practical thing to do, but if the screw holes are not in the correct location he will have the same trouble in a short time. I have worked in mills where the foreman would throw a fit if "Pete" had asked for a new switch cam to replace one that was failing to raise the medium butt needles. These foremen would tell the fixer that a "learner" could make a new machine run, and if he couldn't make machines run without having a new part for each machine that gave trouble, he didn't have a place for him in his plant.

I don't like the idea of patching up machines, but when you cannot get parts to replace worn or defective ones, you have to use your "noodle" and figure out some way to keep the machine running, or else get a check before the regular payday.

Then, Mr. Miller gives his idea of concaving or hollow grinding stitch cams, and "Little Peter" comes along and says he is "goofy" or else made a mistake. After reading this part of "Peter's" epistle, I would be afraid to cross on that bridge he says he is building. He admits that he is against concaving stitch cams, and yet any man who is fixing machines today and is making fabric knows that it has to be done. "Pete" offers an alibi by stating that before he ever heard of concaving or hollow grinding stitch cams, he did not have excessive cutting out in the heel and toe. All right, I'll agree with him there, but I will bet my ears that if he ever fixed Model K machines it was several years ago, and it was on coarse gauge machines running coarse yarns and knitting a loose and sleazy hose. Today we are running fine gauge machines and small yarns, and are manufacturing fabrics that he cannot produce without hollow grinding the cams. He has contradicted himself, because he made the statement that the machine manufacturers know their business, and I find that they are sending the mills stitch cams that are concaved or hollow ground, and that is evidence enough to convince a man that believes in them as much as he does.

Now, I hope "Pete" will keep his shirt on and not get "red-headed" about what I have said, and I had to say something after reading his criticism of Harry Miller's honest efforts to be of some help to his fellow man.

T. K. (TENN.)

Printed Effects in Knitted Goods.

Because of the demand for print goods of all description, manufacturers of knitted underwear, hosiery and outerwear have come to the conclusion that printed garments in their line must be prepared, and some very unusual designs have been presented recently. Allover effects have been brought forward in lingerie in both pure silk numbers and rayon and bordered effects or the center spray has been featured in some delicate gold, silver and pastel colors used for the outline. The flower being outlined in a metal color, the inside is of natural tint and the effect is much the same as the hand painting which is so popular for textiles at the present time.

For instance on the flesh color, white, peach, pink, green or blue garments, gold is used with light pink and blue flowers and in some cases the front panel is entirely in these colors. In other cases it is just the gold flower or design that is preferred.

In stockings the field flowers are making their appearance at the garter line, and printed in their natural colors. The spray effect appears to be the most prominent at the close. Sprays of small flowers at the ankle line in the form of clox has also been featured and the knee clox have likewise been shown in prints. The colored as well as black and white silk and rayon hose have been experimented with and at the close has been moving in good volume, which would indicate that the idea is well liked.

Some mercerized merchandise has also been included in the lines which have been presented, although children's goods has not been printed in every vicinity.

Bloomers and step-ins have been included in the printed numbers of glove silk and rayon by a large firm and lace has also been combined with the delicate coloring of the flowers. In one case a special number is being featured for the hand painting to be done by the home worker. Thus it has been said that a new idea is being developed in knit goods.

In outerwear there is a wider range of ideas being developed. The allover effects in blouses, coats and slip-ons while the dresses are in the same effects, the small flower designs shown a preference at the close with the cotton, rayon, silk and worsted garments. The sports dresses show the sports ideas in the decoration and geometrical patterns prevail in this line. This is also true of sweaters, but some of the new capes show an entire lining of the printed fabric, particularly those wraps and coats used with the ensemble.

In one case a manufacturer here is talking of presenting the necktie and handkerchief of a fine silk having a printed border, the tie to be made of the knitted fabric just the same cut as the regular silk scarf, and the design to be bordered the same as the handkerchief.

It was said that while such a novelty might be good for the holiday trade, it is not considered so very good for the Summer business and it is believed that it would not become popular until the late Fall when it could be displayed with the holiday goods, and boxed in single numbers, each to contain one tie and one handkerchief.

GEORGE W. WALKER, Charlotte manager for Cooper-Hewitt Electric Co., died at his home in Charlotte, N. C., on January 15th, as a result of heart trouble. He is survived by his widow and one brother.

The Yarn Market

Philadelphia, Pa., March 15th, 1928.

During the past month there have been very few changes of a fundamental and permanent character in the Philadelphia cotton yarn market. There have been temporary developments in the situation, but no long tendency of a general nature has exerted its influence. All in all, the market perhaps is today on a slightly less secure bottom than was the case a month ago, but the occurrences during the past four weeks, leading up to the present, provide nothing of a sensational character; nothing which can be designated as a major influence or as a potential influence for the future, one way or the other.

The first week of the month period preceding this writing found the market in a rather strengthened position, and the prospects seemed good for an expanded activity. There had been higher raw cotton values which had forced yarn prices up, and buyers seemed more interested in covering their requirements, in both the weaving and knitting fields. Actual orders coming in represented 5,000- to 10,000-pound lots, but it seemed that active inquiry represented lots ten times these sizes, for delivery around April and May. There continued the evidences of the effect of competition between the mills selling direct, and those distributing through the market; and that business was coming through slowly was evidenced by the stories that there has been more complaint from sellers over the loss of 5,000-pound orders than used to be heard when orders considerably larger got away.

During the next week, there came an improvement in the value of raw materials, but carded yarns, especially, failed to respond sensitively to its effect. Spinners maintained firmly their rates, however, and it can be said that on the whole there was a slight increase in inquiry and business. Salesmen coming in from road trips with few orders but considerable experience reported that in most cases users' stocks of yarns are comparatively small, and while their unfilled orders are also light, there is at the same time no surplus in the amount of manufactured goods. Combed yarns gave a surprise by manifesting considerable strength and improvement in demand and in the amount moved through the market. This business, however, was transacted on the prevailing low price level, it is understood, with single counts showing up a little better, comparatively, than the ply numbers. Carded weaving rates continued about the same as usual, with no radical change. Knitting yarns sagged somewhat; many observers declaring that with the reduced demands for these yarns, there continue too many mills on this class of work. Taking a general range view of the market for the week, prices seemed to hold fairly stable, but even in the case of very small lots, buyers seemed to continue to haggle over further price concessions—as a matter of habit, it seemed to the dealers. From the buyer's viewpoint, it was an effort to secure his raw material at a price which would give him a profit in selling to his customer, who also haggled.

The third week of the period reported here brought in the month of March and the realization that within another year a new president would be inaugurated. Despite economic arguments to the contrary, the bug-a-boo of a "presidential year" still seems to have its psychological effect, and there is a feeling of procrastination of buying on the part of those who might otherwise be interested, and there is much discussion of what is going to happen. As to current conditions, spinners seemed generally to be curtailing, and there also appears to be a steady flow of business passing through the market; smaller, of course, but experienced observers point out that the perspective must be changed, that prosperity now-a-days is possible with fewer great big orders, and with less profit, and that a continued steady influx of smaller orders will in end mount up to a profitable amount of business.

In the final week, in which this is written, there is being effected a somewhat rather general reduction in carded yarns for weaving and knitting, when it appeared that the direct sellers were making more concessions, apparently. Combed yarns, which enjoyed some increased activity a week or so ago, fell off somewhat in strength, and it is reported that the mercerizers have reduced their quotations considerably, believing, it is explained, that they can cover their own requirements for combed yarns on a lower basis.

Philadelphia prices on March 15th follow:

Single Skeins.

4s to 8s	29½	10s	30
12s	31	14s	31½
16s	32	20s	33
24s	35	26s	36 @36½
30s	37½ @38		

Single Warps.

10s	31	12s	31½
14s	32	16s	32½
20s	33 @33½	26s	37
30s	38½ @39	40s	47

Carpet and Upholstery Yarn in Skeins.

8s and 9s 3-4 hard white warp twist	30
8s and 9s tinged tubes	28½
8s 3-4 hard twist waste	27½

Two-Ply Skeins.

8s	30	10s	30½ @31
12s	31½	14s	31½ @32
16s	32 @32½	20s	33½ @34
24s	35½ @36	26s	36½ @37
30s	38	40s	46 @47

Two-Ply Warps.

10s	31½ @32	12s	32 @32½
14s	32½ @33	16s	33 @33½
20s	34 @34½	24s	36½ @37
26s	37½ @38	30s	39
40s	47 @48		

Frame Spun Carded Yarn on Cones.

8s	29½	10s	30
12s	30½	14s	31
16s	31½	18s	32
20s	32 @32½	22s	33
24s	34 @34½	26s	35 @35½
30s	37 @37½	40s	46 @46½
30s double carded	39	30s tying in	35½

Two-Ply Combed Peeler Skeins and Warps.

8s to 16s	42	20s	44
24s	45	30s	48 @50
40s	52 @54	50s	58 @60
60s	63 @65	70s	73 @76
80s	85 @88		

Single Combed Peeler Yarn on Cones.

18s	40	24s	42
30s	46	36s	50
38s	51	40s	52
50s	59	60s	64
70s	74	80s	86

Mule Spun Carded Yarn on Cones.

10s	35	12s	35½
14s	36	16s	36½
18s	37	20s	37½
24s	39	26s	39½
30s	41½	40s	52

Mule Spun Combed Peeler Yarn on Cones.

10s	44	12s	45
14s	46	16s	47
18s	48	20s	49
22s	50	26s	52
28s	53	30s	57
36s	59	38s	60
40s	63		

FIBRE SILK FILLING

Working into practically all classes of textiles, fibre silk has firmly established itself in the weaving industry.

Starting in the nature of a specialty, the introduction of fibre silk, particularly as filling, has spread to such an extent that a large number of automatic and plain looms formerly using cotton filling are now weaving goods with fibre silk filling.

The problem of supplying these looms (primarily fitted for cotton filling) with properly wound fibre silk filling on bobbins of many sizes and forms, for both automatic and plain looms, became very serious.

Weaving mills cannot contemplate shipping their empty bobbins to the producers to be filled, and the manufacturers of fibre silk cannot be prepared to wind economically on the great variety of bobbins in use. In addition, as most weaving of this nature calls for bobbins with a bunch of fibre silk to be placed at the start of the winding at a proper location to function with the loom feeler motion, the filling winders must be equipped with bunch-builder attachments.

The satisfactory solution of this problem is in weaving mills buying their fibre silk filling in skeins from the producers, installing ***Universal No. 90 Winders,*** with proper bunch-builder attachments, and winding their fibre silk filling direct from skein to bobbin, to meet the mill's individual loom requirements.

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Ad No. 21. Printed in U. S. A.

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OF DYED YARN

It will deliver freely, either by rotation or over end, substantially lowering winding costs.

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COLOR -*the* master salesman

Colors of daring brilliance—colors of subdued and quiet harmony—all accentuated by the lustrous sheen of rayon—do you wonder that there has been created so strong a demand for rayon alpacas? Since the very inception of this new fabric, Noveltex, Inc. has been unusually successful in developing fast-selling stylings in their line of "Noveltex" Rayon Alpacas. Color is the dominant factor of these designs, combining delicate tint backgrounds and rich decorative effects.

The Franklin Process Company has co-operated with Noveltex, Inc. in the production of these noteworthy colorings. From the very start of each design we have advised concerning the possibilities and limitations, harmony, and contrast of new colors. We have matched shades and developed new shades in our laboratory, and have sometimes suggested changes that improved the fabric. Back of all this service we have performed our real work of making consistently good deliveries of dyed yarn to make sure that the new stylings reached the market at the earliest possible date.

The success of this user of Franklin Process Colored Yarns is typical of the experience of hundreds of our customers who create and produce yarn-dyed fabrics.

Are your sales of yarn-dyed fabrics satisfactory? Why not let us give you the facts on what we have done for others? This is very likely to suggest profitable opportunities for you. Write us at Providence; your inquiry puts you under no obligation whatever.

FRANKLIN PROCESS COMPANY

Largest Job Dyers of Yarn in America
also Yarn Spinners, Manufacturers Glazed Yarns, Dyeing Machines

FRANKLIN PROCESS

Commission Dyeing of Yarn in the Wound Form

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The Knit Goods Market

Business with most hosiery mills is fair. Some are kept crowded with orders. A comparatively small minority are on short worktime schedules. Speaking generally, successive months have shown improvement since the beginning of the year. With the stimulus of Spring weather and the beginning of intensive buying of full-fashioned silk lines, production in March made a fresh start toward the peak for the first half of the year, notably in the better classes of goods. Shipments now are more nearly balanced with general output, since a number of mills entered upon a curtailment policy, some practically suspending operations temporarily as orders in hand were completed, it being the disposition of numbers of manufacturers to put into stock little or nothing of a precarious character because of possible style or color changes.

Two incidents of the markets last month served to show the importance, from the manufacturer standpoint, of taking into the reckoning the possible quantities of hosiery in hiding. The major one was, of course, the widely advertised sales, in some thousands of stores, of Onyx pointex hose, the accumulation estimated to represent a value of around $4,000,000. The sales were staged well in advance of the period during which Easter shopping is assumed to be at its height, and were believed to have had a depressing influence on retailers preparing for their intimate Easter business. This seems to have been anticipated, for dealers had been slow with their orders to mills, although manufacturers selling to jobbers were, and for some weeks had been, kept well engaged, shipments in many instances calling for extended operation of plants. The placing of so much silk hosiery on the market by the Gotham company was regarded as a foreshadowing of similar action by other large producers who may have piled up stocks during the few months of market laziness.

About the time the Onyx pointex sales were concluded, report came out of a New York jobber having taken over around 10,000 dozen pairs of fine gauge full-fashioned hose which represented a leftover when William F. Taubel, Inc., discontinued business and sold the Riverside mill in New Jersey. The jobber announced the hosiery would be offered for a price at which it became available to large retailers as a dollar a pair stocking, one of the better offerings to that time. That the Taubel company might have had so much hosiery in stock when it relinquished manufacturing seems to have been not generally known in the trade, and its purchase by a jobber was another trade incident carrying an intimation of possibly still more hidden merchandise in unlooked-for quarters.

Accumulations of the character referred to in the Gotham and Taubel incidents are believed in the trade to have been pretty well worked down to a point where the danger from burdensome stocks has been minimized. Holders were unloading before demand for fresh goods for the Spring trade developed, so that by the middle of March there was presented a more healthy situation than had existed in some months, with every indication of a brisk and fairly steady season. That, at any rate, is what some leading mills had prepared for, in installation of new equipment and changes in merchandising methods. Continued expansion of the full-fashioned industry is to be accepted as evidencing absolute confidence in the future markets for fine gauge goods.

According to a survey made early last year, there are over 4000 full-fashioned hosiery machines in Philadelphia and suburban towns and villages. At the time of this unofficial survey it was estimated that 64 per cent of the full-fashioned equipment in the United States was in mills in the Philadelphia and Reading territory, with approximately 2000 in the latter section. Accepting these estimates as fairly accurate, it would appear the country's total equipment is over 11,000 machines. A great part of the current new installation is in the South and the Philadelphia and Reading fields. While it is stated by an authority that the number of new mills established in the South in 1928 will be around 12 to 15, it is thought there will be little deviation from the per centum of active machines in the two northern fields mentioned.

The Quaker Hosiery Co. in Philadelphia already has made a considerable installation this year and machinery still is being added. There is a well authenticated report that a new mill to be in operation shortly in the same city will comprise thirty 51-gauge machines. The greater part of the additions are of 45-gauge and finer, according to contracts known to be in the hands of builders. The popular gauge is, however, 42, as being the more flexible, lending itself to chiffons and sheer service weight.

For some little time there has been demand for more 42-gauge four-thread silk hose than mills could supply. National advertising of the Propper and Conrad lines, probably the leaders in 51-gauge three-thread silk, popularized the very sheer. Necessarily hosiery of this fineness is in the higher price brackets. Woman wanted something representing a near approach to the lines referred to, and manufacturers who picked 42-gauge four thread as likely to fill the bill, as to both construction and price, are understood to be selling their output at profitable prices. The same may be said of mills operating a 45-gauge on all-over silk with picot edge, and they are not dependent upon picayune business. A representative small mill in this latter class, for example, accepts no orders for less than case lots, sells only to a few jobbers and invoices are paid in ten days.

This mill maintains very rigid inspection and sells irregulars for $10.50 a dozen to large retailers, intending they shall go over the counter for $1.25 a pair. Formerly they were sold to a jobber who made it a practice to return the less desirable. The owners of the mill made the discovery the jobber was reboarding and reinspecting the hose and packing it in cartons labeled "Guaranteed Hosiery." This was the explanation for returning stockings which would not look good under such packing, and the jobber can no longer buy irregulars from this mill.

Since some retailers find their regulars are in uneven competition with irregulars which rivals may not take the pains to describe as such, there is some revival of interest in the problem as to how the consuming public may be

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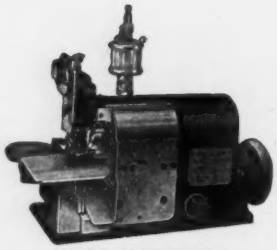
HIGH SPEED TRIMMING AND OVERSEAMING, OVEREDGING AND SHELL STITCH MACHINES FOR USE ON KNITTED AND WOVEN FABRICS OF ALL KINDS

———200 VARIETIES FOR 200 PURPOSES———



CLASS 60 MACHINE

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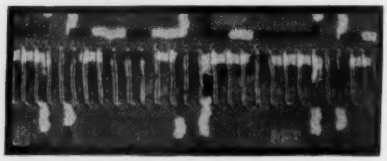
STYLES 60-ABB and 60-D3B

For simultaneously trimming and joining ends of cotton, silk or woolen piece goods with a

FLAT BUTTED SEAM

Permits goods to pass through finishing machines, uninterrupted, for such operations as Shearing, Calendering, Mercerizing, Bleaching, Dyeing and Printing—with *remarkable saving*—both in labor and fabric.



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OTHER RECENT DEVELOPMENTS—FOR THE RAYON TRADE

STYLE 60 RD —For a three-thread overedge finish, either straight or scalloped, on Rayon Bedspreads and other sleazy articles on which the ordinary edge finish will not hold.

STYLE 60 JDC —For two-thread **FLAT SEAMING** on Rayon Underwear.

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Under the Auspices of
National Association of Hosiery and Underwear Manufacturers

safeguarded against this deception. Joseph A. Harron, the Harron Hosiery Mills, and Samuel Tait, the Vogue Silk Hosiery Mills, both in Philadelphia, authorize the statement they favor federal legislation for making it obligatory upon manufacturers to so brand their irregulars that the marking cannot be removed. This, they believe, is the only way for classifying "firsts" and "seconds" for the protection of those who would have the evil eliminated. It is favored by Herbert C. Tily, President of Strawbridge & Clothier, Philadelphia.

Legislation of this character, it is pointed out by some manufacturers and distributors, doubtless would provide for the appointment of a corps of "snoopers," or enforcing agents, who would meet with about the same measure of success as persons similarly employed under the Volstead Act. A common belief is that it is up to dealers to know what they buy and sell it for what it really is, stressing this to their customers, and leaving it to sharpshooters to continue taking advantage of that element of the consuming public which is willing to risk being bamboozled. Marc Sternberg, the Emmeth Textiles, Inc., is credited with having hit the tack on the head when he said it is not a part of the duty of manufacturers to instill morals in traders who would wilfully deceive.

There is increasing demand for "seconds" of women's full-fashioned silk as something to retail for $1 a pair for average grades and $1.25 for fine gauge. In fact, it has been possible in instances for mills to obtain for "seconds" a price compensating for shrinkage in the value of "firsts," by reason of competition. Acceptable regulars to sell for a dollar a pair are hard to locate, although some fairly good hose is coming from 39-gauge machines, and this is having a less smooth path since the introduction of the dollar Bemberg full-fashioned.

The comparatively few manufacturers of the Bemberg stocking express themselves as quite confident of its future. The yarn is being steadily improved, it is stated, eliminating most of the knitting troubles that first were encountered, and there is promise of the producers of the fiber that within a year it will represent the closest possible approach to worm silk in appearance, service and resistance to careless laundering. According to one authority, the Bemberg Corporation of America prefers that use of its fiber be restricted, for the present, to manufacturers selling direct to retailers and a selected few who distribute through jobbers, as a means for protecting prices for both Bemberg yarn and the stockings from which they are knitted. Whether it can be adapted to chiffons as satisfactorily as to service weight is held to be a matter of conjecture. However, Bemberg has, apparently, a big field in service weight hose, and it is known that manufacturers having 39-gauge machines have for weeks been trying to place contracts for the yarn.

There is no little speculation of what will be the effect of the full-fashioned dollar Bemberg stocking on the seamless silk. The latter is regarded the outstanding profitable silk stocking for jobbers, to whom a fine gauge silk to top is available from at least one Philadelphia mill for $6.75 a dozen, as it probably is from others. This is said to be one of the better dollar propositions on the market, and it is doubted that it can be crowded off the boards this year by the Bemberg full-fashioned. It is noted that several Reading, Pa., manufacturers of silk and rayon in combination to top are operating their plants to capacity, this construction proving quite acceptable to a consuming element that must consider price. From a specialty jobber it is learned that a silk-rayon stocking for around 75 cents a pair at the retail counter is in good call. But it is found difficult to alarm full-fashioned manufacturers over the possibility of maintaining the present stage of demand for the seamless other than, perhaps, the all silk with pointed or other featured heel.

A manufacturer of seamless silk who is and always has been a consistent and enthusiastic believer in his product says the only opposition he encounters is from the buyers for retail stores. They are 90 per cent against the seamless, he says, and few will consider putting it in their line. But he still is plugging and says that now and then he wins one over. It may be noteworthy that this manufacturer also offers full fashioned, bought from other mills. "We had to do it to get an entree to buyers," he explains.

According to the reports of 334 mills to the Department of Commerce for 1927 it is shown that of the total production of 53,746,830 dozen pairs, 27 per cent was of women's full-fashioned and of full-fashioned and seamless combined it was 45 per cent, comparing with 37 per cent for men's half-hose. Of the pure thread silk, 14,390,784 dozens were full-fashioned and 2,213,273 dozens seamless, with 3,014,134 dozens of silk and rayon mixture accounted for. While woman, according to the production statistics, consumes much more hosiery than man, she uses only one-third as many cotton stockings, the 1927 output for her use being reported at 3,034,889 dozen pairs, comparing with 9,397,430 dozens for men, for whom mills made only around 400,000 dozens of full-fashioned of all classes.

While men's fancy half-hose is, apparently, making gains on plain colors, production appears to have been carried to a point beyond market needs, with the resultant competition being accountable for better socks for the money than in any previous season. Dealers, taking advantage of an apparent oversupply, seem to have been able to work prices down to a lower level. At any rate, they expect the former 50-cent sock to be put in at a price that would make it a 35-cent seller, and the former 35-cent article is being pushed into the quarter-dollar class, of which output last year was short of demand, while now it is on the market in plentiful, although there has been some curtailment of production. Manufacturers of patterns carrying a certain measure of individuality are able to find a fairly good outlet for dollar novelties, but the call is not as pronounced as had been looked for, for one reason better than former grade socks for a half dollar have been made available with the installation of more modern pattern devices.

While competition in styles makes for a larger volume of sales in the aggregate, dealers buy in increasingly small quantities. This calls for a more conservative basis of output, manufacturers having learned from experience that profits on original showings may be wiped out by losses suffered in the marketing of surplus stocks of designs that are giving way to new ones. So it is expected that as the season advances the situation as to production and consumption will show a better balance, particularly as the chain stores are engaging more extensively in distribution of fancy half-hose for the popular price brackets.

Several manufacturers in Reading who heretofore sold their product to jobbers only, now are shipping the bulk

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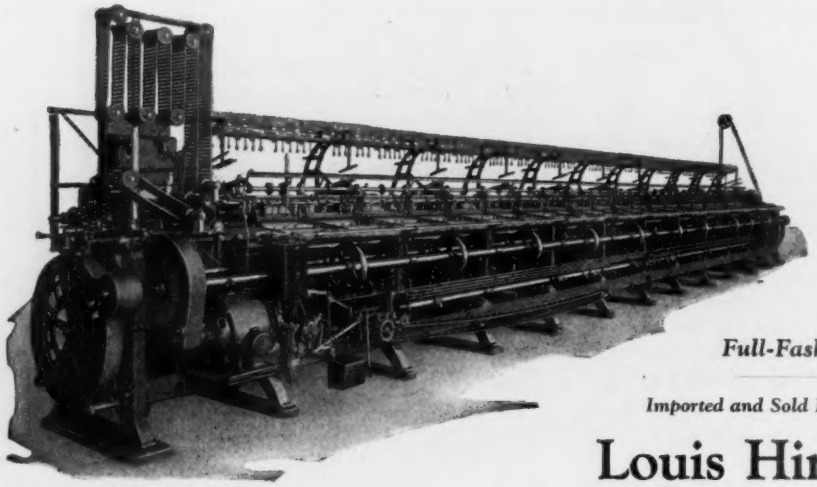

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to chains, and maintaining a capacity stage of plant operation. It is understood some of the larger chains are giving considerable attention to the offerings of mills in that city, where, speaking generally, there is much mill activity, notably in the women's full-fashioned silk division. At least two mills are operating on a 24-hour day schedule, one employs two 10½-hour shifts of operatives and another, two nine-hour shifts, while practically all are on a single shift capacity basis or better. One of the larger mills there for some time has been in arrears with deliveries of fancy half-hose, while operating to the full in the women's full-fashioned department. It appears the hosiery industry in Reading is particularly well engaged.

Misses' sports hose continues as one of the more active items, and there appears no excess output of the season's new patterns. There is some displacement of equipment which a year ago was turning off misses' seven-eighths hose that was eminently satisfactory to the trade, but which now is in not better than second place. But replacement has been so slow that even some practically obsolete lines can be disposed of profitably. According to mill agents, the market situation is one that requires constant watching, with Jacquard golf hose seemingly gaining in popularity for juveniles. It is stated by some factors that boys' golf stockings are figuring more conspicuously in the sales of misses' sports models.

In consonance with the growing use of juvenile fancies at popular prices, the Penn's Valley Hosiery Mills, in Millheim, Pa., is building the first unit of a plant at Milroy. The company, specializing in golf hose and juvenile popular price novelties generally, for some time has been operating day and night, and the few mills in Philadelphia making this description of goods are having a steady run. Not so with many manufacturers of infants' socks, however.

One of the larger establishments which is credited with enormous sales of infants' socks says it seems apparent from their lagging that mills are not making what the public wants, and the buyer himself does not know what to suggest for putting more pep in the business. An old time hosier who is a close observer of style changes and market conditions is of the opinion that to a very large extent the five-eighth hose is superseding the short sock, for the reason it covers more of the leg or may be turned down, for giving it the sock effect. The fancy straight top five-eighths seems much in favor. Some jobbers, finding severe competition in domestic lines, are giving more attention to the product of mills in Germany, found in few if any chain stores. One such line is made with a fashioned leg and sewed in foot. It is of cotton and rayon and, being an import, fetches 50 to 55 cents in some stores.

Infants' socks, like almost every line of hosiery in which style is a factor in sales, probably are lagging mainly because of the ultra conservatism of buyers for jobbers and retailers. The every-day business in full-fashioned silk indicates a steady market for staples and more of buying for future, there being little change in the size of orders since last year, whereas in novelties—whether men's or juvenile—purchases are in smaller quantities. It is the experience of large shippers that retailers who last year bought in case lots are this year averaging around 20 dozens. This, it is stated, about represents the proportion of individual sales comparing with early 1927, of anything that cannot be classed as staple. From which, it is pointed out, there

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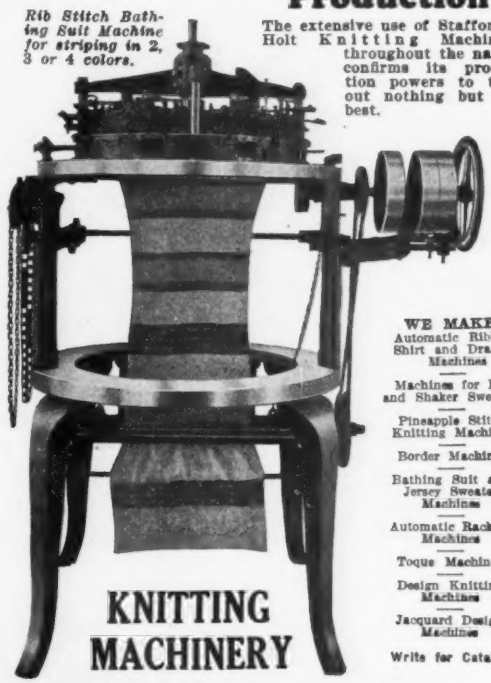

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is ready explanation for the light advance business in wool hose.

It is regarded doubtful in the trade whether more than a handful of jobbers has placed contracts for Fall and Winter for more than sample lots. Firmness of the wool and worsted yarn markets is viewed by manufacturers as dimming the prospects of lower than current prices for hosiery. Yet it is difficult to get confirmation of worthwhile orders. Some business is passing, necessarily, but it is of a character that leaves much to manufacturers as to what would be safe for putting in stock.

Plain colors and heathers seem promising of moving in about last years' volume, but novelties are viewed as a too speculative proposition to be attractive to either manufacturer or distributor. It looks as though there may be some crowding of mills toward late Summer and early Fall. If there are stocks carried over from the current disappointing season, holders are not making the fact known.

Underwear.

Manufacturers of men's heavy weight cotton underwear show considerable concern over the disposition of distributors to further defer the placing of contracts. The lines of most manufacturers have been on the market since the beginning of the year, some going out after business as long ago as the last week in November. The sum total of the contracts placed to the middle of March, it was estimated by some mill representatives, amounted to no more than a single month's bookings ordinarily within a few weeks following the opening, and manufacturers generally are beginning to ask why the delay.

Trade writers have sought to place the blame on the selling end—that is, inability of jobbers to arouse their road men to the pitch of enthusiasm necessary for successfully pushing their lines in a desultory market. Obviously, it is pointed out in behalf of jobbers, salesmen have been meeting with the stoutest kind of resistance from retailers, who admittedly did not have a brisk Winter, due to weather vagaries, so little of low temperatures as to encourage the wearing of light weights, which, by the admission of manufacturers, are to a large extent supplanting the heavies.

Aside from the probability of burdensome quantities of this season's heavy weights remaining unsold, the absence of more than a mere smattering of business doubtless can be charged to weakness in the selling end, but this, in the opinion of distributors, involves manufacturers no less than jobbers. One of the more important of the western wholesalers, commenting on conditions, said, "with manufacturers trying to market their goods in the way they have been offering them, we feel we cannot operate with any degree of confidence."

What the jobber had in mind was the several price cuts from time to time. As the reductions were made in the expectation they would stimulate buying, and having failed to arouse the looked for interest, he felt other cuts might be made, in a final effort to get action. The rejoinder of manufacturers is that present prices are based on cotton at cents a pound less than current cost and that therefore recessions are less likely than advances.

In the downward revision of underwear prices, wages in many mills were cut by ten per cent, that mills might operate on a small margin of profit. This necessarily hit the purses of operatives, and since the reductions went into effect there has been considerable curtailment, so that

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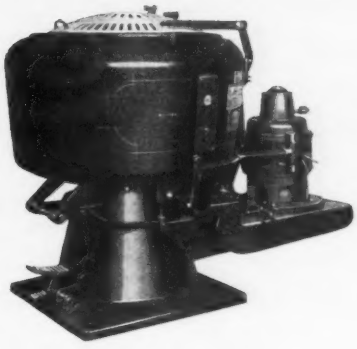

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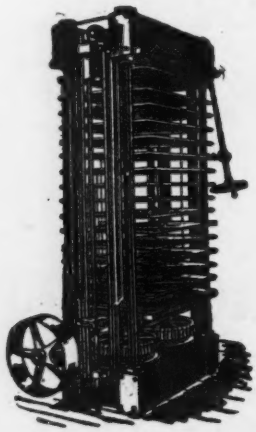

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many mill employees probably have had the return from their toil reduced by 25 per cent, the reduced purchasing power being not overlooked by the distributing trades. It has been suggested that if the jobbers were to buy for a small per cent of their safely estimated needs, one after another coming to market, mills would soon be operating actively, employees would be earning instead of struggling along on saving, and there would be, psychologically, such an improvement in the trade atmosphere that it would be not long before it might be possible to record a complete revival. Operating conservatively by representative buyers doubtless would have the effect of a tonic on the rank and file. But it needs a manufacturer to put leaven into the buying fraternity.

Prediction is freely made that, notwithstanding the late start, the year's business will equal the normal volume for recent years. This may represent a wish rather than a thought. It does not appear from reports in the trade that mills are accumulating stocks in anticipation of a late rush. What is outstanding as a fact is that distributors are playing safe, so far as not committing themselves for goods, on the ground they can buy later, as requirements develop, and it would seem no idle guess that if manufacturers play as safely from their side of the table, jobbers will not only buy later, but will be willing to pay more than current prices, as a premium for desired deliveries. Would the better profits on a lessened volume of business compensate for the absence of profits during the long wait?

Somewhat discouraging for those who look for much action from jobbers in the next few weeks is the conservatism with which retailers are taking light weights. Jobbers have not yet bought what may reasonably be expected will be required to carry them into Summer. There is, therefore, not much hope that they will do their heavy weight buying until they are actively moving their Summer weights. Collections from retailers have been none too good. Some improvement in this respect is to be looked for with the Spring movement, and the earlier the season the quicker will the movement begin to take shape.

Necessarily the matter of style is a factor in retailers' commitments for Summer underwear. Rayon is fast coming to the front in men's lines, as well as women's and between this and nainsooks, ribs and bal briggans may not have as easy sailing as in former years. For one leading manufacturer of nainsooks, early orders are well ahead of the bookings for the first two months of 1927. This may not be general, but accepted as an isolated showing, it would seem to bear some relation to the lagging business in knitted light weights for men.

A report of an encouraging character comes from one of the larger jobbers in the East. The manager of the underwear department had his road men make a heavy weight drive among representative nearby retailers, beginning the first week in March, and expresses himself as amazed with the results. Salesmen were instructed to stress the fact prices are as low as they probably can be this year and point out that cotton underwear would be a safe asset and maybe show a larger than the present indicated profit. Many of the dealers, it is stated, saw the force of the argument and realized that some support for mills was necessary for averting a shortage at a critical moment. Which emphasizes the representation there had been weakness in the selling end.

Sweaters.

There was more early buying of sweaters this year than usual, according to leading manufacturers. This accounts in part for the lull which set in during March. Those jobbers who had bought will place no repeat orders before May and June, while those who deferred seem to feel there is lacking inspiration for contracting now. Mills fairly well supplied with early orders have them in process and maintain a fair stage of plant operation. Mills with only a smattering of business or not overconfident that what orders they have will stick are, as a rule, pursuing a safe policy as to accumulating stocks, making up practically nothing for buyers to play with in the event the market drags for longer than is to be expected.

Popular price shakers are viewed as a comparatively safe item. Their continued popularity is indicated in the orders thus far placed and the character of the business taken. Sports coats are being taken for Spring, in right fair quantities. Necessarily there is some speculation as to how far novelties will figure in demand for Fall and Winter, and manufacturers are proceeding cautiously with their output. Sports lines for men and boys for Spring appear as the more promising items at the moment, dealers stocking up conservatively for the opening of the season of outdoor games.

There is sustained demand for bathing suits, and shipments measure up to mill expectations. There is some talk of advancing prices for sweaters and bathing suits, but manufacturers are reluctant to announce any increase during the seasonal lull, although increasingly higher cost of worsted yarns is viewed as sufficient warrant for upward revisions.

Among the Knitting Mills.

Belle Meade Hosiery Mills, Nashville, Tenn., have been incorporated with a capital of $200,000, for the manufacture of cotton, wool, rayon and silk hosiery. A two-story brick and steel structure will be erected. B. M. Corlett and A. R. Diefendorf, Jr., are the organizers and managers. John M. Berry, of the Rome Hosiery Mills, Rome, Ga., is president.

American Knitting Mills, Shelbyville, Tenn., have installed full-fashioned machinery. Bryant Woosley is manager.

Partain Hosiery Mills, Telford, Tenn., have been merged with the Texas Hosiery Mills, Dallas, Texas.

Nick-a-Jack Hosiery Mills, Chattanooga, Tenn., are erecting an addition to provide more space for manufacturing operations.

Pilot Knitting Mills, Lexington, N. C., have been organized, and 100 hosiery machines will be installed. A building has been leased. W. A. Carmichael, of Columbia, S. C., is president.

Shoaf-Sink Hosiery Mill Co., Lexington, N. C., is building a 60x70 foot addition, and will install 300-needle Scott & Williams K machines in addition to present equipment.

Ridgeview Hosiery Mill Co., Newton, N. C., has purchased eight 42-gauge, 20-section full-fashioned hosiery machines.

It is reported that Mock-Judson-Voehringer, Greensboro, N. C., will double the capacity of their present full-fashioned plant.

Louis Baach and Max Leiderman are removing equipment from Philadelphia to a building in Greensboro, N. C., for the manufacture of children's hosiery.

J. C. Bossong, 88 Franklyn St., New York City, has let contract to Lockwood, Greene & Co., for the erection of a full-fashioned hosiery mill in Asheboro, N. C.

Lockwood, Greene & Co., Inc., engineers of Charlotte, N. C., and Boston, Mass., have been commissioned by the Westcott Hosiery Mills, Dalton, Ga., to prepare plans and supervise the construction of a two-story, 60x120 foot, extension to the present plant; and to prepare plans and supervise also the erection of a new dyehouse. The extension to the plant will be of steel frame with wood floor and brick exterior walls.

John Woodall and associates have formed a company for the erection and operation of a knitting mill at Woodland, Ga.

Hunt-Ala Company, Huntsville, Ala., has been incorporated to operate the Huntsville Knitting Mills. George P. Cooper is in charge.

A large apartment house, made necessary by recent expansion in the knitting department, has been erected by the Wellman Cotton Mill, Athens, Ala.

Contract has been let for the construction of a one-story 50x50 foot addition to the Meridian (Miss.) Mill of the Alden Mills.

National Hosiery Mills, New Orleans, La., have installed a group of new machinery.

Houston Hosiery Mills, Houston, Texas, are adding some knitting machines which will double the capacity. L. A. Parsons is vice-president.

Finley & McCoy have been awarded contract for the erection of a three-story rayon underwear plant for Francis A. Walton, of Chattanooga, at Martinsville, Va.

High Rock Knitting Co., Bristol, Va., has purchased the complete knitting equipment of the Lessig Knitting Mills, Asheland, Pa., and the machinery has been removed to Bristol.

Arcadia Hosiery Mills, Paducah, Kentucky, are erecting a plant. W. P. Paxton is president.

Settlements in Full-Fashioned Pay Negotiations.

The Philadelphia group of full-fashioned hosiery manufacturers whose committee has had many conferences with a committee of the American Federation of Full-Fashioned Hosiery Workers has, apparently, accepted certain concessions and it appears as though an open rupture has been averted with the recommendation the new wage scale be generally adopted. At present writing adjustments in the pay of loopers, seamers and toppers remain to be made, and further parleys seem likely, to embrace possible revisions as to the boarders.

Under the adjustments so far as they have been accepted by both sides there is a slight advantage to mills, but not sufficient, it is stated, to warrant any reduction in prices of hosiery. The non-union and open shops are not, of course, affected by the negotiations between employers and employees, and these continue to operate independent of arrangements made by others with union officials. In fact, in the report submitted following a meeting of manufacturers several weeks ago there is no mention of the federation of workers. Of 70 full-fashioned mills in Philadelphia, 51 are members of the hosiery section of the Philadelphia Textile Manufacturers Association, which has been waging a campaign for a betterment of conditions from the manufacturer standpoint, and 28 mills were represented at the meeting. The following statement was issued by Chairman Joseph Haines, Jr., the Haines Hosiery Mills, for the trade press:

"The committee of full-fashioned hosiery manufacturers representing the hosiery section of the Philadelphia Textile Manufacturers' Association has partially completed its negotiations for a wage schedule adjustment with their organized employees.

"These negotiations, which have extended over a period of the last four months, were primarily determined upon for the purpose of rectifying certain irregularities in the schedule itself and the further purpose of standardizing the schedule for the general use of the manufacturers throughout this section.

"The manufacturers are pleased at the results thus far attained through these negotiations, as it has been clearly indicated that the employees and their organization officials are both capable and willing to deal with the arising conditions in the full-fashioned hosiery industry, on a basis of the actual facts thereof, with a full determination to so regulate their requirements as to assure themselves of steady employment and provide employers with a proper return on their investment.

"Briefly, then, the wage schedule is being equalized on the basis of time and effort involved and standardized for general use. The workers have been definitely enlightened as to conditions confronting the local industry and have determined to support the sale of their daily products by the elimination of all unnecessary waste and a steadfast effort to improve the quality and quantity of their products.

"Encouraged by their success in this particular, the employers have decided to extend their group effort in supplementary channels where it is hopefully anticipated that more satisfactory and economical conditions can be obtained."

International Nickel Booklet.

International Nickel Co., 67 Wall Street, New York City, have prepared an attractive booklet including illustrations of the different types of advertising being used by the company in various general and trade magazines in "Planning Ahead for Monel Metal." The group of advertisements discusses the many applications of this material in many industries.

R. & H. Issue Booklet of Advertising.

Roessler & Hasslacher Chemical Co., 709 Sixth Ave., New York City, have issued a booklet containing a series of advertisements designed to express and clarify the desirable features of R & H chemicals and service. It reproduces advertisements showing the extent to which this type of chemical service goes in the different affairs of life, by presenting various phases of an average man and illustrating how chemical service touches upon each.

H. P. Babbitt Now with Bosson & Lane.

H. P. Babbitt, of Providence, R. I., is now associated with Bosson & Lane, Atlantic, Mass., as sales representative and demonstrator. Mr. Babbitt has been following the textile manufacturing business in New England, Pennsylvania and New Jersey for the past ten years.